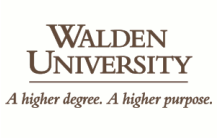

2016

Exploring Leader-Initiated Change Management for Adopting Cloud Services

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This is to certify that the doctoral dissertation by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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2016

Abstract

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by

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

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Abstract

Cloud technology requires a virtualized ubiquitous and scalable environment with shared resources. The general problem in cloud adoption is the absence of standardization across organizations. A standardized approach remained elusive since the inception of the Cloud First mandate. The purpose of this study was to explore leader-initiated change management (LICM) practices in cloud adoption within organizations. The theoretical framework included the classical theories of Kurt Lewin's organization change management, leader-member exchange, intentional change, and appreciative inquiry. A multiple case study design approach facilitated the exploration of LICM-value added practices to identify standardization in cloud adoption practices. Data collection included semistructured interviews from 8 high-level cloud adopters chosen from a resource pool of change management experts including a government chief information officer, academic college professor, military commander, and industry chief executive officer. Each interviewee represented an organization type providing perspectives on strategies for cloud adoption. Secondary data gathering included universal cloud standards and guidance from collaborative professional working groups. Emergent themes were identified after completing Yin's 5 stages of data analysis: LICM approaches for cloud decision-making, change management strategies, leader empowerment in action planning with progressive metrics, and successful learning outcomes in corporate universities. LICM strategies foster cooperative relationships and positive social change. Standardized cloud adoption practices also contribute to positive social change in reducing the environmental footprint through organizational efficiency.

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Dedication

This research study is dedicated to my mother. My mother passed away on the day that I successfully presented my first research study to my committee and fellow doctoral students in November 2008 at the University of Maryland. My mother was a beloved friend whose continual support and unconditional love provided me with the desire to continue through life without surrender to adversity. I attribute my joy found in everyday life as demonstrated by my younger brother Jim, who left this world at the young age of 38. Jim and I shared a unique understanding of life in identifying every obstacle as a welcome challenge. I also dedicate this study to my father who passed away at the young age of 64. His support was unyielding in encouraging every work endeavor or educational pursuit that I chose.

Acknowledgment

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Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

In adopting cloud services, organizations across the globe have been compelled to collaborate and share resources (Messnarz et al., 2014). Some challenges related to these efforts include developing standards for cloud technology that align with the current practices and mission of organizations, achieving optimal sustainability goals, defining appropriate security and privacy controls, and provisioning of the corporate assurance of a cloud service (Kappler, Peeters, Van Droogenboreck, & Van Hoorebeeck, 2014). This qualitative multiple case study was an exploration of leadership strategies and regulatory guidance on cloud adoption (Vohra, 2014). Cloud service strategic practices may benefit with leader-initiated change management (LICM).

Several cloud standards exist since the establishment of working groups to provide guidance for all organizations (Iorga, 2012). As a volunteer member of the groups; participation provided a means for identifying gaps in guidance for organizations. The absence of a standardized approach to cloud adoption has created ambiguity and uncertainty for organization adopters of the cloud in attempts to comply with information assurance requirements (Snyder, 2012). Defining appropriate security and privacy controls to protect the differentiating and changing system boundaries resulted in ambiguity. These options contributed to uncertainty on appropriate precautions in a cloud environment (Kappler et al., 2014).

Many indeterminate options caused uncertainty for leaders in providing direction in identifying appropriate precautions in a cloud environment (Kappler et al., 2014). Cooperation among the various adopters of cloud services requires a standardized

approach to mirror similarities in sharing environmental boundaries among all organizations (Messnarz et al., 2014). According to Kappler et al. (2014), it is essential that cloud adoption continues to evolve as a secure and compliant technology. The assignment of appropriate security and privacy controls including appropriate configurations protects the system from unforeseen network collisions resulting in loss of availability of the cloud service (Messnarz et al., 2014). This study is an exploration of leader challengies and subsequent strategies in cloud adoption.

Chapter 1 includes the challenges of leading change, discussions on the importance of integrating classical theories for a singular theoretical approach, and an overview of the strategies and theories in meeting requirements for cloud adoption as a conceptual lens for meeting objectives. The Chapter also includes the problem and purpose statements plus research questions on organizational leaders' challenges related to change management in adopting cloud technologies.

Background of the Study

Cloud computing technologies provide users with ubiquitous and convenient access to resources (Black, 2012). These accessible resources provide a service similar to an Internet subscription (Biddick, 2012). Cloud products and associated applications ensure mobility, integration, and interconnectivity (Clark et al., 2014). The proliferation of such technologies requires information to be managed in a virtualized environment (Clark et al., 2014).

Business organizations have incorporated cloud services to remain competitive and achieve other desired outcomes (Clark, Quigley, & Stumpf, 2014). The effect of

decision-making in successful cloud adoptive organizations required leaders to integrate cloud technologies (Abdullah, Murad, & Hasan, 2015). However, the mandate to integrate cloud technologies has not provided a common standardized approach or method for adoption based on organization mission (Bildosola, Rio-Belver, Cilleruelo, & Garechana, 2015).

Many leaders whose organizations have tried to implement cloud technologies have faced discomfort, disruption, and uncertainty (Goben & Raszewski, 2015). As change agent leaders, they must be effective in balancing current requirements with innovations (Farrands, 2012). These leaders have often turned to data-driven decision-making in their efforts to facilitate change within their organizations (Alkhalid et al., 2013; Goben & Rasz).

Add transition to connect this paragraph to the previous one. The initial cloud policy from the first appointed U.S. Chief Information Officer (CIO), Vivek Kundra, established a mandate for government agencies to adopt cloud services whenever possible (Van Roekel, 2012). Guidance for adoption soon followed the mandate with instructions on implementation. The initiative may be interpreted as a means of reducing costs and tangible asset demands incurred from hardware and software purchases. storing vital information in an intangible environment (Van Roekel, 2012).

The second federal CIO, Steven Van Roekel, prepared additional OMB memoranda with procedures and criteria to assist government agencies in adopting and implementing this initiative (Lohe & Legner, 2014). The Cloud First initiative focused on adopting whenever possible however; the procedures and guidance to implement the

cloud had not been developed. Since this initiative, procedures and guidance are continuously being produced without the ability to provide guidance for leaders in standardizing to prevent multiple configuration and adoption problems and problematic issues. The need for cooperation and standardization among organizations with LICM may circumvent issues of cloud adoption.

Common and continual issues with cloud include system boundary identification, security and privacy control assignment for organizational mission, prevention of technical issues of load balancing, tenancy assignment, plus intrusion detection remedies. LICM facilitates organizational strategies based on cooperative integration of cloud services reliant on existing regulatory authority and identification of ongoing needs from continuous monitoring.

The current problem includes the challenges of moving to the cloud, identification of the need for cloud services based on the organization mission, and determining feasibility for adopting a cloud service. This included the various circumstances on determining requirements for the cloud service and decision-making in protection of assets given the absence of a standardized approach with mutual organizational cooperation (Biddick, 2012).

In supporting cloud adoption for agencies, where an industry is the cloud provider, for example; the agency is concentrating on the mandate and the industry provides the technical expertise. The difficulty results from meeting the requirement without the standardized security and privacy protocol for meeting the mandate with sufficient protections that do not sacrifice the availability of the cloud service (Biddick,

2012). Protecting the cloud assets requires a balance of government regulation compliance and system development configurations that result in a secure environment.

The second federal CIO, Steven Van Roekel, established a 25-point implementation plan to identify the criteria for cloud adoption. This document identified the need to implement by timeframes however; it did not provide the methodology to reach the goal of cloud adoption (Van Roekel, 2012). The 25-point implementation plan was an elaborate checklist on meeting the mandate of Cloud First without the guidance on achieving the result. Van Roekel provided the regulatory authority as the CIO and continued to support the cloud initiative and to involve organizational entities in adopting cloud services (Biddick, 2012).

The U.S. government mandate required implementation of cloud technologies whenever possible by government agencies yet this mandate impacted all organizational types since the adoption effort requires cooperation in unifying technologies based on current innovations. A paradigm shift occurred with the advent of Cloud First since the government was required to reduce costs of hardware and software, reduce the costs of data centers thru consolidation and reduce the environmental footprint. Cloud First meant that agencies must consider using a cloud service before acquiring hardware and software. This shift in the manner in which business was conducted became the second wave of the internet.

After the mandate was delivered; guidance and planning for all business organizations required the creation of multiple working groups to identify criteria for cloud adoption (Caytiles, Lee, & Park, 2012). Industry standards are common criteria

among all organizations to facilitate the implementation of new innovations. Technological innovations are not implemented in a vacuum and all organizations were on board with attempting to define the method to successfully adopt cloud services. Documentation and risk assessment methodologies created by National Institute of Standards and Technology (NIST) staff provide background information for assessing guidance developed by various cloud working groups (Clark et al., 2014). Adoption identifies the need for a leadership competency model and change management procedure for identifying technology adoption strategies (Biddick, 2012). Multiple guidance documents facilitate procedures to meet compliance although meeting requirements and strategizing success require alignment by leadership (Caytiles, Lee, & Park, 2012).

Tony Scott was the third Federal CIO nominated by the President with leadership initiatives that included a global effort for integration of virtual software and provided prior CIO experience with Microsoft. His appointment by the President occurred in 2015 (Donovan & Scott, 2015). Tony Scott established a cyber-security strategy and implementation plan (CSIP) for the federal civilian government (Donovan & Scott, 2015). This implementation plan was a continuance from the 25-point implementation plan established by the second CIO Steven VanRoekel (2012).

The communications and cost saving benefits of cloud technologies may increase effectiveness, security management, and efficiency in business organizations of all types (Hobman & Walker, 2015). By adopting cloud technology, leaders may also be able to

reduce the environmental footprint of their organizational operations (Yang, Yan, & Nebert, 2013).

Cloud strategy success necessitates the use of a leadership competency model of LICM. This strategy is necessary to target disruptive technology integration due to its complexity, challenges, security, and privacy considerations (Erl, Mahmood, & Puttini, 2013). LICM integration and synthesis of four classical theories align to form a competency model for exploring change management strategies and comparing challenges that organizational leaders encounter in cloud technology adoption (Kavis, 2014).

LICM explores the effective techniques for cloud computing adoption in various organizations as a resource for leaders attempting to integrate this technology (Clark et al., 2014). This exploration of LICM provides an understanding of the challenges and training requirements for achieving success. Adopting a cloud service did not have a consistent and methodological approach, however; guidance provided a consistent and methodological basis for organizations on compliance with developing criteria.

This qualitative multiple case study on cloud services explored cloud adoption challenges in organizations. This government requirement impacts all organizations. Organizations provide services to the government, require cooperative information from the government, or develop needed assets and supplies to augment and enhance government capabilities. Although FedRAMP^{SM} provided an approval process for cloud submissions in achieving authority to operate and obtaining a listing of authorized cloud providers, cloud systems for leveraging to meet current needs, and third-party audit

assessors; the obstacles to identifying consistent, standardized adoption with standardized results remains a challenge (Wood, 2014).

Problem Statement

The necessity of cloud adoption expands to all organizational types. The general problem was the absence of a standardized approach for incorporating disruptive and innovative technologies in all organizations as a unified configurable and cooperative entity (Bildosola et al., 2015). Integration of cloud technologies requires cooperation among all organizations. Configuration challenges, decommissioning of legacy hardware, software development, security bottlenecks, and the uncertainty in managing the virtualized environment posed unique concerns for integrators, providers, brokers, and users of cloud services.

The specific problem remains as organizational uncertainty on approaches, strategies, and metrics to achieve standardization. An absence of standardized approaches in adopting cloud technologies without associated leader direction to support change management presents a gap in the literature. This specific problem created a challenge for organizations in establishing leader initiated change management strategic approaches (Badger, Grance, Patt-Corner, & Voas, 2012).

The level of complexity in cloud computing adoption without change management standardization challenges the government, industry, military, private, non-profit, and academic organizations. Standardization of approaches among organization types alleviates the uncertainty in cloud adoption strategies as a conceptual framework (Kumar, 2014). Customization and leveraging existing cloud systems does not forego the

necessity for standardized approaches that reach beyond the identification of security and privacy controls.

Purpose of the Study

The purpose of this qualitative multiple case study explores change management approaches provided by cloud adoption leaders according to organization type. The strategic integrators of cloud adoption services provide insight on successful efforts in leading change (Snyder, 2012). The exploration of four synthesized classical theories resulted in a singular theoretical approach of *Leader-initiated change management* (LICM). Evaluating the classical theories of Lewin's change management (CM), leader-member exchange (LMX), intentional change theory (ICT), and appreciative inquiry (AI) combined with current practices in decision-making provide the theoretical approach (Orr & Cleveland-Innes, 2015). Interviews of organizational leaders provided a capability for identifying decision-making strategies in overcoming challenges in cloud adoption (Lohe & Legner, 2014).

The exploration of research questions established a bridge for leveraging LICM based on current leader strategies. The strategies applied to cloud computing adoption standardization to address the gap in the literature. Facilitating communications among organizational types provided a theoretical framework based on a conceptual approach to establish LICM strategies and decision concepts for cloud adoption (Mitchell, 2014). This study is an exploration of organizational types to identify cloud adoption strategies for future adopters.

Positive social change occurs with the improved leader and subordinate relationships. The positive social change also transpires with increased environmental sustainability, security of system integration, reduced hardware, software, and equipment requirements that result in the reduction of energy consumption (Hahn, 2012). A worldwide effort has been established to reduce the environmental footprint by reducing the necessity of hardware expansion and increasing efficiency in managing data.

Research Questions

The overarching research question for this study was; does LICM provide the nexus for facilitating cloud adoption thru leader initiated change management strategies. This question applies to all organizations. Four additional supportive research questions in the study align with LICM and challenge the sufficiency of current policy and procedures. The supportive questions include the following; 1) are current information assurance policies and procedures sufficient to address threats and vulnerabilities for leaders to adopt cloud computing; and, 2) which metrics guided technology leaders in decision-making for technology adoption through change management.

The remaining two supportive question inquiries purport; 3) was leader training on effective cloud adoption an effective resource to facilitate the adoption of cloud service systems; and, 4) which leader change management practices can provide a standardization of cloud service adoption in organizations. The case study research identified new strategic approaches to cloud adoption challenges in the journey of compliance for authority to operate (Van Roekel, 2012).

The research questions established the goals of the study to uncover approaches that facilitate effective cloud adoption in all businesses and require strategic input from representative change management experts. The foundation and framework of the research criteria included compliance with the governmental requirement to adopt cloud technologies whenever possible. Although this was a government requirement, all business organizations require alignment with current technological advancements to include industry competitive advantage, academic training requirements, altruistic endeavors common with non-profits, and military mission relevancy (Barrick, Thurgood, Smith, & Courtright, 2015).

Theoretical Foundation

The theoretical foundation for the study was LICM, a combined approach based on the classical theories of Lewin's CM, LMX, ICT, and AI. The LICM theoretical foundation was originated through triangulation of classical theories and integration into a singular theory for relevancy in the present. Triangulation was used to verify the four classical theories approach to compare with current practices and synthesize the information provided by the interviewees (Manganelli, Threatt, Brooks, Healy, Merino, Yanik, & Green, 2014). Appendix A contains the diagrams of the LICM research exploration process.

This body of knowledge facilitated provisioning as a basis for identifying approaches in change management. This knowledge included comparisons of strategies applied by leaders in various organizations (Biddick, 2012). The forecast for success and lessons learned determined possible procedures on promoting leader-driven change

management for disruptive technologies (Garrison, Kim, & Wakefield, 2012). Adopting cloud computing challenges organizational leaders (Erl et al., 2013). Appendix B provides the screening criteria, an invitation for participation in the study, and prospective interview questions. Appendix C includes summaries of the participant responses including any artifacts.

Conceptual Framework

This qualitative multiple case study explores current practices in adopting innovative technologies. The qualitative multiple case study assessed high-level leadership strategies based on guidance and standards developed to assist in the adoption of a cloud service (Baskarada, 2014). This conceptual framework evaluation included the four theoretical framework classical theories identified as Lewin's CM, LMX, ICT, and AI to obtain an understanding of the challenges for this multiple case study (Cronin, 2014). Leadership theory was explored as a synthesis of these four theories and referred to in the study as LICM. This approach was exploratory in obtaining strategies for successful cloud adoption for all business organizations. Identifying the conceptual basis for success provides a framework for initiating an optimal standardized approach based on the evidence of the findings.

Evaluating theories in change management formulated by experts in successful change management initiatives support the foundation of the study (Humphries & Howard, 2014). The theoretical model of LICM aligns with the conceptual model to explore soft skills of LICM communication with strategies in cloud adoption (Kumar, 2014). Appendix A, Figure 1 displays the diagram of the concept map. The inclusion of a

conceptual framework and a theoretical model of LICM coalesce in this multiple case study as a synergistic pairing (Cronin, 2014).

Concepts and assertions with associations contribute to the logic of findings and support data saturation to achieve new knowledge and replicate analysis of the findings (Krippendorff, 2013). The conceptual framework includes participant attitude object findings with ranges of positive, neutral, and negative responses (Krippendorff, 2013).

Theories in effective change management integrate as LICM to explore classical theory with current approaches that align with the change management strategies of organizational leaders. The exploration, assessment, and evaluations of strategies identified successful and contrasting leadership practices in response to the research questions (Snyder, 2012). The adaptability of LICM as a theoretical approach identified tactics for effective learning by training leaders (Mirriahi, Vaid, & Burns, 2015). A corporate university setting for training delivery provided an ideal environment to introduce LICM strategies to facilitate decision-making (Guitart & Conesa, 2016).

Instructional design strategies identified from potential leaders as a result of this study support educational efforts for future research. The leaders considered the execution of the change management initiative in a project management plan available for addressing in future studies (Dane & George, 2014). Transformation leadership required innovation and imagination essential for disruptive technologies (Aryee, Walumbwa, Zhou, & Chad, 2012).

Interviewing change management experts, evaluating and coding current textual requirements, assessing cloud challenges in adoption, and reviewing security

policy and privacy implications provide discernment in this multiple case study (Cronin, 2014). A review of content provided an analytical approach for procedural identification of textual inferences (Cho & Lee, 2014). A means for describing communications evolved when studying text patterns that align themes with practical applications (Cho & Lee, 2014).

These themes applied to historical documentation (i.e.: working group white papers and guidance), official publications (i.e.: NIST standards and OMB Memorandum), and open-ended interview analysis that provides a means for describing attitudinal and behavioral communications for research design (Cho & Lee, 2014). Content analysis procedures operate on text interpretation and transcripts of human communications which indicate ideal supportive data gathering resources in multiple case study research (Cho & Lee, 2014). Content analysis was not to be confused with grounded theory (Mitchell, 2014). In a qualitative multiple case study, content was a triangulated addition in the validation of the research (Yin, 2014).

Qualitative research aligns with a review of the pertinent content rather than the theory of established information (Mitchell, 2014). The exploration in the multiple case study was to compare and contrast the theory as it applied to current conditions (Yin, 2014). This multiple case study explored the capabilities of cloud computing to facilitate its adoption in businesses (Yin, 2014). The study was qualitative and was a review of textual resources in progress since the initiative for cloud adoption became a mandate as noted by Van Roekel (2012).

Current resources published within six months of the mandate for incorporating cloud guided leaders in organizations on cloud services (Hogan, 2014). The initial standards identified nomenclature, architecture, and security requirements. The resulting standards, policies, and guidelines contributed to the identification of a considerable gap in the literature for standardized protocols and procedures in the implementation of cloud technologies (Black, 2012). FedRAMP[SM] provided the criteria for authority to operate (ATO) as government organizations and historically became the venue for industries to adopt procedures for compliance as a cooperative effort with agencies (OMB, 2015).

Organizational leaders sought to find the standardized approach to meet these criteria which required rigor in multiple case study approaches (Cronin, 2014). Exploring leadership tactics to introduce the cloud technologies in the organization was a strategic approach to the adoption of the technologies by developing a leader LICM for cloud adoption for businesses (Rowlinson, Hassard, & Decker, 2014).

This was a multiple case study exploration in decision-making leadership for various organization types. Examination of optimal decision-making strategy required exploration of leadership competencies in adopting disruptive technologies effectively and efficiently (Hogg et al., 2012). The strategy required identification of biases and heuristic influences in moral decision-making (Gunia, Wang, Insad, & Murnigham, 2012).

The degree of compliance required leader influence to include existing methodology, repercussions for non-compliance, and support for initiating change in the

organization (Gunia et al., 2012). The adoption of cloud technologies in all business organizations facilitated positive social change by reducing the environmental footprint of hardware equipment and associated peripherals (Messnarz et al., 2014).

This research explored current change management initiatives by evaluating LICM for adopting and managing cloud technologies and associated *big data* which includes the dilemma of cloud storage (Harnick, Kolodner, Ronen, Satran, & Shulman-Peleg, 2014). Cloud storage poses a unique challenge with developing security metrics and conducting audit trails of the data in the system (Harnick et al., 2014). Tracking the information in storage was a challenge for organizations (Harnick et al., 2014).

Adoption of the new cloud technology facilitates a positive social change by reducing the hardware, software, and other tangible costs associated with equipment thus improving environmental sustainability (Hahn, 2012). Balancing the challenges and integrating the cloud services in the organization required LICM. Effective use of resources, increased efficiency, and LICM promotes positive social change within any organization through decision-making strategies that result in a standardized approach to cloud adoption (Hahn, 2012).

Nature of the Study

This qualitative multiple case study explored the journey of cloud computing adoption in identifying the various challenges encountered by organizational leaders in the integration of this disruptive technology (Vohra, 2014). In applying classical theories triangulated and consolidated to a singular theory as LICM, the approaches determine how the various organizational leaders responded to the requirements to incorporate

cloud computing. Multiple case study research was an ideal research method when attempting to capture a journey that required iterations of events such as the cloud adoption initiative (Cronin, 2014).

The case study approach is appropriate for this study and encompasses the journey from its inception with the mandate to adopt cloud services in federal agencies whenever possible as introduced by the first federal CIO in 2010. In this exploration, the journey required an analysis of classical theories synthesized and unified as qualitative research. In comparing theoretical modeling, this multiple case study framework provided a strong foundation for identifying leader approaches identifiable as contributory to the body of knowledge in addressing the gap in the literature (Baskarada, 2014).

Interviews of representative organizational leaders provided answers to the research questions and contributed to the body of new knowledge from a theoretical analysis of classical theories applied to current approaches. The development of leadership strategies identified a diplomatic versus an authoritarian leader approach (Fidler, 2014). The content analysis provided gaps in the literature (Cho & Lee, 2014). The various standards, regulations, and documents developed on cloud computing implementation culminated in needs analysis with a response to requirements fulfillment (Ada & Ghaffarzadeh, 2015).

The Federal CIO's cloud policy changes the way government agencies respond to information technology requirements (Van Roekel, 2012). Cloud First mandate required federal agencies to move to the cloud whenever possible. The requirement for

determining ‘whenever possible’ remains elusive. The Cloud First mandate requirement for government agencies impacted all business organizations. Organizations needed to adapt to current technology trends and move to the cloud to remain competitive and current with today’s advancements (Black, 2012).

Definitions

Big data: The voluminous amount of information was *big data*. *Big data* evolved from the massive growth of manageable information to voluminous information with storage and retrieval challenges plus manageability uncertainty (Bahrami, 2013).

Change management: Change management was an approach in managing transitions from a current state in an organization to the optimal state with a focus on the human resource components of change (Del Guidice, Yanovsky, & Finn, 2014).

Cloud services initiative: Cloud services initiative was the *Cloud First* mandate that was established by the first chief information officer (CIO) of the United States (US) to require government agencies to adopt cloud services whenever possible. *Cloud First* required that before purchasing new hardware and software resources, cloud computing adoption must be considered (Van Roekel, 2012).

Cloud computing paradigm: Cloud computing paradigm was a shift from conventional computing practices to leveraging features accessible in a virtualized environment. This cloud environment establishes intangible versus tangible access to resources which constitutes a cloud computing paradigm (Caytiles et al., 2012).

Corporate university: The corporate university provides an onsite venue for training leaders in organization. The corporate university applies to onsite military

training facilities, industry training sites, and agency-specific training centers, for example (Guitart & Conesa, 2016)

Disruptive technologies: Disruptive technologies change the manner businesses operate and upset the paradigm of usual processes, procedures, regulations, and managerial actions. This technology creates a disruption in the business status quo creating a disruptive technology (Baskarada, 2014).

Federal Risk and Authorization Management Program (FedRAMP^{SM}): FedRAMP^{SM} was a program designed by the federal government to assess and authorize cloud technologies or operations (OMB, 2015). This resource was created to assist organizational cloud providers and cloud assessment professionals with risk management strategies for security control assignment (Blank & Gallagher, 2012).

Leader-initiated Change Management (LICM): LICM was a theory created in this dissertation to provide a synthesis of four classical theories as an integrated strategic approach. The classical theories of Lewin's CM, LMX, ICT, and AI integrate to form LICM. Appreciative Inquiry (AI) was also known as ICT/AI or ICT.

The integration of change management and field theory perspectives from the social scientist Kurt Lewin provide the first of four classical theories (Burnes & Cooke, 2013). Leader-member exchange was based on the social relationship developments in organizational change to achieve a transformative relationship (Burch & Guarana, 2014). The intentional change was identifiable by strong leadership resulting in optimal goal achievement (Nelson & Stolterman, 2014), and appreciative inquiry was an educational

approach in innovation and transformation (Orr & Cleveland-Innes, 2015). The four theories are synergistic and intertwined to form LICM.

Assumptions

The requirement for cloud adoption by the Federal CIO, Steven Van Roekel, and his predecessor, Vivek Kundra established a mandate that government agencies must consider cloud computing integration before purchasing hardware and software (Van Roekel, 2012). The third Federal CIO, Tony Scott, was pursuing this initiative with identifying the strategies and implementation plan goals that facilitate the effort (Donovan & Scott, 2015). The cloud mandate resulted in many cloud computing standards. The NIST working groups developed standards with guidance and recommendations for addressing adoption (Iorga, 2012). Numerous issues and problems exist in the intricacies of cloud adoption including security and privacy concerns (Ross, 2012).

Decisions indicate difficulty in adopting cloud technologies without standards to address specific organizational concerns guided by leader-member relationships not authoritarian (Burch & Guarana, 2014). These standards identify guidance documents that provided singular topics of concern with each publication. Standardized strategies provide direction to organizational leaders in cloud adoption (Ross, 2012).

Each cloud computing publication addressed specific criteria in an attempt to resolve issues in cloud adoption for organizations (Ross, 2012). Security and privacy concerns created an avoidance of moving to the cloud (Ross, 2012). Potential adopters of

cloud sought standardized approaches, assurances in establishing boundaries, reliable measures for retrieval upon demand, and, integration management (Ross, 2012).

Leaders in an organization often make decisions according to their personal values and attempt to align these choices to the organizational culture (Kumar, 2014). The decision-making activities of leadership in educational institutions experience constraints from the goals of the higher educational authority (Farrands, 2012). Decisions culminate as a result of the established strategic plan of the organization (Kumar, Manjaly, & Sunny, 2014). Contingencies to alter or adapt to challenges or initiatives was an option for change management effectiveness.

The working groups with NIST included representatives from all organizations (Kumar et al., 2014). This study reviewed the strategies and implications of representative organizations in adopting the disruptive technology of cloud computing. The researcher observed and participated in various cloud working groups to contribute, advise, develop, and edit standards for cloud adoption. These industry standards guide all organizations.

Scope and Delimitations

Interviews from successful representative cloud adoption leaders in organizations and currently associated practices provide an exploration of leadership strategies. These strategies align with LICM facilitating the adoption of cloud technologies in organizations (Dickens, 2015). An LICM serves as a vehicle to adopt cloud computing in an efficient, pragmatic and effective manner. This study explored the theory of LICM, content analysis from various standards evolved to facilitate cloud adoption, and

strategies employed by organizational change management leaders in integrating cloud computing. Current and ongoing regulatory guidance developed in working groups to assist adopters of the cloud.

This research explored the current change management initiatives in disruptive technology adoption tactics by exploring leader and subordinate relationships as a team effort in integrating a successful project effort (Ifenthaler, 2014). Since cloud computing was a difficult and disruptive technological innovation, the adoption was an important undertaking (Ifenthaler, 2014). Exploring options, leadership practices, legacy change management initiatives, and technical requirements (including security) facilitates a means for designing an LICM effort to contribute to the body of knowledge and address the gap in the literature.

The study necessitated assimilation and evaluation of current literature in the public domain to include innovative advancements and cutting edge industry standards evolved on a continual basis from NIST. Creating instructional design initiatives was a product of this evaluative process for future studies. This multiple case study was a thorough exploration of information assurance policies, metrics in technology innovations, and change management criteria (Baskarada, 2014). LICM and strategic practices provided analysis.

Various leaders in organizations integrated cloud services. The organizational practices provided regulatory guidance. A combination of the historical theories of Lewin's CM, LMX, ICT, and AI was combined with current practices to serve as a viable foundation for the study identified as LICM by the researcher.

Limitations of the Study

A reassessment was necessary for optimal validation that ultimately provided certification and accreditation of systems. FedRAMP[SM] was the authority for obtaining a listing authorized cloud provider. Potential cloud adopters strived to meet the criteria to operate (OMB, 2015). Cloud providers are not always considering cloud adoption. A uniformed approach to adoption ensures continuity of quality, cooperative standardization, and ease of communication in identifying an approach to adoption that applied to all organizations (Wood, 2014).

Despite the absence or inclusion of FedRAMP[SM] the criteria to secure the cloud remains a concern by cloud adopters. The guidance was mandatory for governmental agencies in authorizing systems, and auditing criteria for the compliance requirements as designated by the associated federal laws for security and privacy. Any organization conducted business with the government must also comply with the criteria. The study coverage does not include the results of compliance or non-compliance of FedRAMP[SM] regulatory requirements. (Chakhar, Ishizaka, Labib, & Saad, 2016).

Accreditation and authorization to operate (ATO) required submission of a cloud service to FedRAMP[SM] for review. Cloud providers or third party assessors facilitated the achievement of the ATO. The ATO requires the assignment of a baseline of security controls and privacy protections (OMB, 2015).

The ATO goal required organizational representatives to address security and privacy controls. Adoption procedures lacked uniformity among organizations (Van Roekel, 2012). The government had circumstances when FedRAMP[SM] was required.

Additional conditions occurred where internal documentation and risk management required acceptance of the risk.

The acquisition process must be redesigned to explore technology purchases to test cloud service feasibility. Proposed acquisition decisions require revised policies to meet the mandatory cloud initiative (Van Roekel, 2012). In the evaluative process, government organizations may choose to implement risk management options in refraining from cloud adoption when challenges prevent successful integration. This study discusses options for decision-making for cloud adoption strategies. The research refrains from coverage on the federal acquisition process of contracting criteria of organizations seeking to conduct business with the government.

The government was required to move to the cloud whenever possible. Although this initiative was mandatory for the government, the initiative impacts all organizations. The impact discussed in this study identified a leader from each organizational type to identify strategies and decision-making on whether the move to the cloud was a viable change management initiative in all situations. The business use case must be written to identify when moving to a cloud was not feasible. The absence of this resource was a limitation of the study.

Decision-making necessitated effective acquisition processes to meet agency mission requirements in the selection of cloud technologies (Farrands, 2012). This research provided a methodology for cloud service selection based on effective decision-making. The decision-making process does not provide a definitive choice selection for the organizational leaders. Choices made on a particular cloud service

deployment model was contingent on the mission of the organization and the security requirements of the stored data (Blank & Gallagher, 2012).

The decision to acquire and integrate a cloud service with the risk assessment became the subject of a NIST standard (Blank & Gallagher, 2012). Koala was a cloud simulator at NIST that tests cloud service functionality by creating reality scenarios and employs statistical analysis to identify limitations (Ross, 2012). Koala provided the information on whether the cloud system provided functionality based on forecasting algorithms.

Koala does not answer the question on whether the move to the cloud was necessary for the identified system (Ross, 2012). This simulator resource was viable in evaluating the infrastructure feasibility of the cloud system (Ross, 2012). As an effort to determine possible success, initiatives such as Koala provided a scenario analysis for projection of outcomes for cloud infrastructure services.

This study does not simulate, forecast, or test cloud service technologies to determine security and privacy criteria within the specified organizational type. This determination on security and privacy provisioned the risk management effort for risk assessment of systems. This judgment of risk aligned with the mission of the organization and followed current risk management practices (Sukru & Mohsen, 2015). Use cases determine the outcome of various implementation types for asset identification (Ross, 2012). The methodology to ensure functionality was available in a business use case (Sukru & Mohsen, 2015).

Significance of the Study

This study explored the gap in the literature on integrating cloud computing technologies in organizations through lessons learned by change management leaders. The leaders interviewed in the study provide their respective experiences in integrating cloud services with recommendations on achieving change management success. Organizational requirements identify a driver in the decision to move to the cloud. LICM theory triangulates four classical theories on change management, evaluates the strategies of the participants, and correlates decision-making with the available standards and documentation evolved as a result of the initiative to move to the cloud.

The first theory incorporated Lewin's change management theory of unfreezing current practices, applying change management and adjusting practices, and then refreezing the revise organization practices. This theory aligned with the dismantling of antiquated practices to move to new change management processes and stabilize the effort for successful change initiatives. (Burnes & Cooke, 2013). The second theory applied the leader-member exchange supportive relationships that influence the subordinate to engage in the change management effort (Chan & Mak, 2012). The third theory of intentional change constituted a constructive and logical approach to identifying the change initiative and subsequent plan to complete the effort (Orr & Cleveland-Innes, 2015). The fourth theory of appreciative inquiry aligns and associates with intentional change (Orr & Cleveland-Innes, 2015). A simple rationale process for the necessity of understanding identifiable complex change was identifiable (Munoz & Encinar, 2014).

Content analysis exploration of current standards and regulations resulted in attempts to guide organizations. Qualitative coding on the cloud computing standards evolved to assist organizations was the subject of the content analysis. Increasing the effectiveness of data management results in a positive social change (Messnarz et al., 2014).

Reducing tangible computer resource requirements and the environmental footprint, plus employing efficient management of data; serves as a catalyst for continual positive social change (Messnarz et al., 2014). The ISO 26000 standard established the documentation for engaging in the social responsibility of the organization.

ISO 26000 authority included considerations of the environmental impact produced by excessive hardware. The regulatory authority of ISO 26000 also included guidance for ensuring a sustainable ecosystem (Hahn, 2012). In adopting cloud computing, an organization leader addresses major initiatives in ISO 26000 (Messnarz et al., 2014).

The strategic international standard ensured corporate sustainability and social responsibility in organizations (Hahn, 2012). Cost reduction benefits occurred as a result of technological advancement incurring positive social change (Hahn, 2012). The change in the environment occurs with cloud adoption with the need for less hardware and software assets to manage data (Messnarz et al., 2014).

This multiple case study explored cloud technologies for adoption by government, industry, military, private, non-profit, and academic. Through trained leadership, LICM was a resource for integration of cloud services and technologies in organizations. The

synthesis of four classical theories and the associated practices established in these theories, provide an approach to harvesting the attributes of leadership and subordinates in developing a synergistic relationship. The classical theories of Lewin's CM, LMX, ICT, and AI formulated LICM as a means of developing a leadership model for achieving adoption competency approach.

LICM was adaptable and transferable across all businesses and executed by a project management plan taught at the corporate university (Ramasubbu, Bharadwaj, & Tayi, 2015). A plan was the subject of future studies. Interviewing leaders from representative organizations provided valuable knowledge for strategies in resolving challenges that occurred in cloud computing adoption without a standardized precedence. Since cloud service adoption strategies establish relatively new knowledge to the market, strategic solutions identify prospective regulatory efforts in attempting to alleviate the difficulties encountered by leaders in organizations (Biddick, 2012).

Standardization among organizations has not been established on processes that must be coordinated for strategic success (Caytiles et al., 2012). Exploring the strategies and approaches from leadership in organizations coupled with change management theoretical approaches provide strategic knowledge for uniform standardization that was currently a gap in the literature (Clark et al., 2014). Current implementation strategies resolve the research inquiry on how leaders adopt cloud computing in all business organizations categories.

ISO 26000 provided a standard for sustainability as a benefit of cloud adoption (Hahn, 2012). ISO 26000 outcomes to facilitate positive social change (Hahn, 2012).

Identifying a standardized approach to adoption to reap the benefit of positive social change was explored in this research multiple case study (Baskarada, 2014).

Current strategies practiced by leaders provided valuable discernment for LICM. The interviews explore these strategies for a possible solution to cloud computing adoption challenges. Although LICM was not a guaranteed solution, the use of the synthesized classical theories provided a foundation for identifying possible remedies to current challenges. Identifying the challenges that occurred among these leaders provided valuable lessons learned understanding for prospective change management organizational leaders.

Significance to Practice

Psychodynamic theory supports leader-member exchange theory (Reeve, 2013). When various key elements applied in the organization, coaching efforts prosper (Reeve, 2013). These elements include leadership ethics of a visionary; followers with loyalty and an understanding of task analysis; problem-solving among the team; and, effective group process with high morale (Joshi & Knight, 2015).

In establishing an equilibrium among participants in team dynamics, an effective plan was executed based on positive social change tactics that include the management of internal defenses in psychodynamics (Ifenthaler, 2014). Project management practitioners in cloud adoption outline the tasks and resources necessary in documenting and planning the effort of integration. Lewin's change management was a classical theory to identify the significant practical measures required for initiating the change.

The leader-member relationship provided an impetus for encouraging the creativity of developers (Lee, K., Scandura, Kim, Joshi, & Lee, J., 2012). This creativity was essential for promoting the integrity of the software in cloud systems to facilitate intentional change as applied to appreciative inquiry. Appreciative inquiry approaches provide an atmosphere of success with the elevation of subordinates by leaders who transform subordinates (Cooperrider & Godwin, 2015).

Coaches required recognition of internal reactions among team members, facilitated diffusion of potential conflicts, and, adhered to fastidious attention to detail in accomplishing the cloud adoption plan (Campopiano & de Massis, 2015). Cloud adoption was analogous to a techno-structural intervention that focused on an entire organization with the potential to create substantial cost savings with the use of intangible assets (Campopiano & de Massis, 2015).

Significance to Theory

An LICM approach required psychological assessment and leader development strategies (Berkovich, 2014). Evaluating classic leader theory, change management practices, and organizational culture identifies the skills required for effective leadership (Berkovich, 2014). Organizations typically expand funding for training executive leaders, however; when change management was the driving force, tailoring the training to achieve the goal to facilitate a more optimal outcome and increase success in adoption (Campopiano & de Massis, 2015). In identifying the cloud technology and its associated requirements, the manner that the adoption was presented, portrayed, and carried out

relies heavily on the communicative resource (Campopiano & de Massis, 2015). In this study, the communicative resource was an LICM approach.

Significance to Social Change

Effective integration of disruptive technology adoption contributes to positive social change within the organization by establishing stronger relationships that facilitate cooperation among leaders, managers, and employees in organizations that was optimal for job satisfaction and efficiency (Hobman & Walker, 2015). Also, the environmental footprint was reduced with the practice of implementing cloud technologies that host data in a virtualized environment (Hahn, 2012). The cloud technology increases sustainability in the business environment (Messnarz et al., 2014). A positive social position of leaders as perceived by the team contribute to successful organizational change (Lockett, Currie, Finn, Martin, & Waring, 2014).

The ISO 26000 standard required that an organization upholds a corporate moral responsibility; meet policy requirements; create a new policy to facilitate a positive social change; and, incite a call to achieve the goal of reputable decision-making targeting social responsibility in business practices (Fehr, Yam, & Dang, 2015). Identifying successful LICM approaches that integrated into a model for strategic alignment in cloud adoption approaches may assist in leveraging decision-making (Hahn, 2012). Creating a leader-member exchange relationship contributes to a positive social change in the business environment facilitating a higher level of satisfaction, cooperation, and morale (Hobman & Walker, 2015).

When cooperation occurs with equal investment in the goal, the leader model was optimal (Hobman & Walker, 2015). Goal setting required a clear leader vision that was transferable to the subordinate for ensuring effective cloud technologies (Gu, Tang, & Jiang, 2015). The relationship was essential to support the leader in change management that disrupts the current method of operations in the organization with intent to change the level of strategic approaches currently in effect (Orr & Cleveland-Innes, 2015)

The cost savings of acquisition expenses for hardware and software provided an ecological benefit and positive social change that contributes to the economic frugality of agencies that all organizations emulate (Hobman & Walker, 2015). Leadership required a cultural change that includes LICM and ethical constructs to explore cost saving measures that support a sustainable computing environment with reduced expenditures (Fehr et al., 2015). The structured change required support from invested leadership that understand the culture of the organization (Van Wijk, Stam, Elfring, Zietsma, & den Hond, 2013).

Summary and Transition

This study was a qualitative multiple case study on how the paradigm shift of a cloud policy affects the adoption of information technology resources in government, industry, military, private, non-profit, and academic organizations (Baskarada, 2014). The multiple case qualitative research study was an exploration of cloud computing strategic approaches and associated guidance addressing innovations for adoption in organizations with relevant approaches.

The LICM and lessons learned from various leaders in representative organizations provide insight and advice in exploring the success and challenges incurred in cloud adoption. This exploration determines the effectiveness of disruptive cloud service technology adoption. This qualitative multiple case study assesses the measures necessary for adopting secure cloud computing regardless of the organization type as a means of identifying a singular classical theory for leaders (Baskarada, 2014).

The literature review is a thorough research exploration of the case of cloud adoption and the resultant efforts in integrating cloud services into organizations. These challenges required standards from NIST and ISO to facilitate the adoption process (Hahn, 2012). Benevolent leadership has been an asset in change management with leader-member relationships (Chan & Mak, 2012). The literature explored for research on foundation leadership practices and the development of a unique, singular approach. LICM defined a singular approach since exploration and objectivity of an existing process for selecting information technologies provided an opportunity to determine alternatives in strategic approaches.

The objective exploration served as a gauge on whether an alternative methodology can be identified and initiated for strategic approaches that require a leader initiative. The explored approach was an objective part of the multiple case study (Cronin, 2014). The feasibility of process exploration assists in viewing existing processes objectively for determining requirements. Adjustments and tactics for the adoption of disruptive technologies became a constant undertaking for businesses.

The new technology of cloud computing supplanted current methods of computing (Anyan, 2013). Disruptive technologies such as cloud services require consideration to determine the extent of possible radical changes in the operations of businesses. (Battilana & Casciaro, 2012). The innovation replaces hardware and drastically changes the access of information from a tangible to a virtualized environment (Badger et al., 2012). This environment required an examination of current decision-making methodologies of leadership, and training (Farrands, 2012).

The corporate university training environment proves an ideal venue for identifying the effectiveness of technology adoption (Yap & Webber, 2015). The requirement for adopting cloud computing whenever possible disseminates through initiatives by leaders to employ change management strategies to integrate cloud services in the respective organization (Hogg et al., 2012). This filters through the organization from a top-down managerial methodology (Barrick et al., 2015). Decision-making strategies align with LICM to synthesize the current practices of leaders with an integration of the theoretical and conceptual framework.

A concept map provided further clarification to the study by providing a visual depiction of the essential characteristics necessary for consideration in the evaluative process of theoretical review. For enhancing clarity, this qualitative multiple case study includes both the theoretical and conceptual framework (Cronin, 2014). The addition of a conceptual framework for clarification provided a perspective in visualizing approaches for qualitative studies (Yin, 2014).

This framework was an exploration of the development of cloud computing adoption as identified in the cloud policy. The literature review was a comprehensive exploration of the journey that has transpired in attempting to meet the initiative of cloud policy. This attempt resulted in multiple standards being developed to identify issues that needed resolution (Ross, 2012).

The standardization of the approach, however; was a gap in the literature (Ross, 2012). This gap was identified by exploring the standards, evaluating the classical theories for leaders, and synthesizing an approach that provides leaders with organizational options for unification in cloud adoption strategies. Although there has been a span of years since the inception of the initial cloud policy's introduction by the first U.S. CIO; the issue of a standardized adoption process remains a continual challenge for all organizations (Erl, 2013).

Chapter 2: Literature Review

The problem of the absence of an organizational standardized approach in a virtualized environment remains an issue in cloud adoption. This gap in the literature has been explored and classical theories of change management are combined as LICM to provide guidance in achieving successful cloud adoption based on leader change manaement. The purpose of this study was to explore leaders' strategic insights for adopting and implementing cloud technologies within their organizations. The literature review includes an evaluation of various challenges in this multiple case study in cloud service adoption. These efforts include providing standards and solutions, assigning controls for security and privacy concerns, and defining a process to approve a cloud service in a uniform manner (Baskarada, 2014). Providing a uniform and standardized approach to cloud adoption remains a dilemma for cloud adopters.

Leader training is discussed to identify the need for future research. The review of the literature also identifies the ability of trained leaders to serve as a catalyst for change management initiative regardless of the technology (Berkovich, 2014). Interviews of representative leaders in organizations answer the research question on how LICM approaches provide leaders with effective strategies for cloud adoption in organizations (Seidman, 2013).

LICM is a discussion of the likelihood of success in change management and in training leaders in a corporate university. The synthesis of classical theories and interview data created a nexus for evaluation. My examination of LICM is based on a thorough evaluation of the four classical theories of change management. Applicable

literature has been reviewed and synthesized to develop a theoretical model identified as LICM for this research study based on the themes of Lewin's CM, LMX, ICT, and AI theories (Gu et al., 2015).

Interviews of representative leaders in organizations provided me with an understanding of the challenges and successes in cloud adoption as a means of developing the approach of LICM as a vehicle for effective interaction in acquiring these services. Organizations may benefit from this study by providing opportunities for positive social change. The benefit of positive social change occurred in cloud adoption by reducing the environmental footprint of hardware and software purchases (Van Roekel, 2012). Additional benefits include the reduction of costly data centers, consolidation of equipment requirements, and, the establishment of management systems that provide an integrated effort that fosters positive leader relationships with personnel in the organization (Samy et al., 2015).

Literature Search Strategy

Most of the peer-reviewed scholarly articles were obtained from the Academy of Management (AOM). As a member and peer reviewer of AOM since 2007; a selection of articles that were relevant and current aligned with the research study subject. These article choices were within the five-year time frame and all were peer-reviewed and scholarly. The search of ABI INFORM's database uncovered key words such as: *decision-making*, *organizational culture*, *change management strategies*, and *cloud computing requirements*. The database search of ABI INFORM for relevant and current peer-reviewed scholarly articles required synthesis of the information to identify any gaps

in the literature. As a member of the NIST working groups since the creation of the Cloud First mandate, developing guidance as a member of the Standards Acceleration Group for Cloud Systems provided me with the opportunity to identify gaps in the document creation, development, release, and challenges incurred in cloud adoption. A subsequent white paper evolved from the working group on challenges n cloud adoption.

My research on NIST standards identified the struggle incurred in identifying policies, regulations, requirements, procedures, and guidance documents for the cloud initiative (see Ross et al., 2015). This research effort required LICM. AOM journals had pertinent articles on decision-making, change management, leader and subordinate relationships, to encourage success in goal setting. The ABI INFORM database was a resource in identifying relevant peer-reviewed and scholarly findings on cloud adoption solutions to ensure data saturation from the search in providing documentation. As a peer reviewer of various AOM journals, identifying scholarly articles and similarly peer reviewed articles on leadership, change management, cloud services, agile project management, and strategic initiatives encompassed the focus of the research study.

Theoretical Foundation

LICM was a combined approach of classical theories from Lewin's change management (CM), the interaction of leader-member exchange (LMX), integration of intentional change theory (ICT), and appreciative inquiry (AI) in organizations. The development of LICM evolved as the result of reviewing the four classical theories of Lewin's CM, LMX, ICT, and AI for a singular approach in identifying effective change management for organizations. A conceptual model based on the synthesis of LICM,

standards developed by NIST that address multiple policy challenges in cloud adoption, and, integration of interviews from representative organizations contribute to the understanding of the theoretical foundation in exploring strategic options.

Technological innovations expanded at such a rapid rate that the manner of conducting business changed completely in organizations (Battilana & Casciaro, 2012). Executive coaching of leadership was a means for developing leaders to execute the change management initiative (Campopiano & de Massis, 2015). Assessments and feedback provide leaders with the ability to alter their practices and test performance options (Del Guidice et al., 2014).

Leaders respond to coaching information provided through training (Mangin, 2014). The learned capabilities provide the knowledge to decide on the pursuit of paths in cloud adoption and identify escalation levels in commitment (Drummond, 2014). Cloud adoption was also facilitated by implementing the leadership competency model of LICM (Del Guidice et al., 2014). Currently, there was no process or procedure to standardize the adoption of cloud technologies (Gonzalez & Smith, 2014).

Literature Analysis of Main Themes

The classical theories of Lewin's CM, LMX, ICT, and AI serve as a foundation for strategic exploration (Clark et al., 2014). The focus of this multiple case study was to incorporate the basic concepts of Lewin's CM, LMX, ICT, and AI approach in identifying strategies synthesized and explored providing rigor and validity in the approach (Houghton, Casey, Shaw, & Murphy, 2013). This theoretical framework for

cloud adoption strategies recognized as LICM in this study. This framework was an exploration of the integration of Lewin's CM, LMX, ICT, and AI.

Cloud computing, change management, model leader identification, and strategic planning objectives defined the main focus in this research study. These objectives required subset reviews. Subset views entailed leadership models, organizational theory, disruptive technologies and corporate training. In this literature, exploration of classical models of change management, the interaction between leader and followers, intentional change with decision theory, appreciative inquiry, training environments, and ethics established a foundation for the research (Mayer, Aquino, Greenbaum, & Kuenzi, 2012).

The goal of the study was to explore the practices of representative organizational leaders and to synthesize existing and applicable literature thoroughly on cloud services. This exploration was a path to determine a means of identifying a strategy to meet the cloud services initiative (Foss & Lindenberg, 2013). A goal is a uniform theoretical approach for the integration of all business organizations through a leadership change management approach**.** Leaders trained in a corporate university have the capability of delivering a project plan for cloud service adoption (Yap & Webber, 2015).

The first theory of LICM was Lewin's change management classical theory. This theory recognized as the change management theory established by Kurt Lewin in 1947 (Burnes & Cooke, 2013). Lewin proposed that the continuity of behavior required a forced end (freezing) with the initiation of a new approach (unfreezing) to dismantle the existing organization, implementing new processes for management (change), and establishment of the new processes (refreezing) resulting in change (Talmaciu, 2014).

This simple but effective approach fostered the idea of change management in organizations (Talmaciu, 2014).

The continuous behavior of patching fixes and creating new policies without holistically addressing the organizational goal of cloud adoption benefits from the classical approach of Lewin (Foss & Lindenberg, 2013). The second theory was a leader-member exchange (LMX) reliance on the relationships between leaders and subordinates as a team to facilitate change with the leader attainment of high emotional maturity for effective decision-making (Orduhn & Acar, 2014).

The unique characteristics of a disruptive technology such as cloud computing required extensive security requirements in establishing a viable system and require leadership to integrate the technology (Garrison et al., 2012). The third theory was intentional change (ICT) which supports the fourth theory of appreciative inquiry (AI). ICT integration combines with the theory of LICM as a supportive element for pursuing change as an outcome resulting in LICM (Elanain, 2013). Security policy requirements provide understanding to establish required protocols with an identifiable gap in the literature provided as a means of adding to the body of knowledge (Badger et al., 2012).

There was an absence of guidance in acquiring, establishing, securing, and leading change in cloud service integration which impacts morale and job satisfaction (Ariani, 2012). An understanding of the theoretical framework of LICM provided opportunities for favorable interaction to facilitate change management success (Ariani, 2012). The requirements for security and privacy controls prioritize the emphasis on procedural integration of the cloud services in organizations (Van Roekel, 2012).

Cloud distribution techniques must be considered when adopting cloud services, for example (Caytiles et al., 2012). Securing cloud services present a unique adaptation that not only changes the conduct of business; cloud also alters the methodology in securing cyberspace (Caytiles et al., 2012). Security metrics need to be established based on security control selection that can be adapted for the cloud service required (Garrison et al., 2012). The performance requirements weighted for success based on testing protocol provide transferable results for depiction on a balanced scorecard (Pietrzak, Jalosinski, Paliszkiewicz, & Brzozowski, 2015).

Documenting success by a project plan that provided a cost/benefit analysis on synthesizing project management techniques for obtaining a viable outcome (Dane & George, 2014). The metrics provided in this study provide the basis for future research in developing a project plan (Ramasubbu et al., 2015)

The federal government was moving toward a decentralized, service-oriented architecture (Biddick, 2012). Conducting certification and accreditation of systems required adherence to stringent threat and vulnerability preventive criteria to ensure secure virtual systems (Black, 2012). Cloud services established a new way of conducting business for all organizations similar to the impact of the internet (Erl et al., 2013).

System engineering methods established a need to ensure the protection of disruptive technical systems. Information assurance required a protection of systems that ensure the integrity, availability, confidentiality, authentication, and non-repudiation of the information contained within the systems (Ross, 2012). The integration of cloud

computing in all organizations was based on the requirement for government agencies to adopt cloud technologies whenever possible (Van Roekel, 2012).

Software system engineering during the audit of the system development life cycle (SDLC) provided outcomes for cloud systems in organizations (Gordon, 2016). In development, programming code was most susceptible to malware occurrences which are often the cause of basic human error (Gordon, 2016). The International Standard for Organizations (ISO), 27034-1 provides the conceptual framework and procedures for organizational guidance in the software development lifecycle for cloud systems (Gordon, 2016).

The initiative was the integration of cloud services. Although the initiative for cloud adoption was a Presidential mandate for government organizations, historical theories and leadership strategies for integration was explored to determine a methodology for effective adoption by all organizations (Van Roekel, 2012).

This initiative also required data consolidation of centers. Further downsizing of data centers was necessary to meet the reduction of hardware requirements as a result of the cloud technology (Van Roekel, 2012). Leading change in organizations required a sophisticated talent in achieving an integrated approach for transforming change initiatives into positive social change with increased communications, business efficiency, and environmental sustainability resulting in reduced hardware requirements (Messnarz et al., 2014). As these sophisticated methods to manage information in a virtual environment expand; electronic content must be analyzed to interpret meaning, facilitate accessibility, and maintain security and integrity of the content (Grant, 2012).

The change was paradoxically the only constant in life and was often met with great resistance while the status quo fosters complacency (Grant, 2012). Leader change agents served as a vehicle in enforcing the constant of existing rules (Battilana & Casciaro, 2012). Interview responses identified successes and challenges in adopting cloud services from representatives of various organizations.

The leadership representatives provide an understanding of cloud adoption strategies in the search for a common integration tactic (Garrison et al., 2012). Positive social change through corporate social responsibility was a benefit that was resultant from cloud adoption (Campopiano & de Massis, 2015).

Training in a corporate university was a common venue for integrating leader competencies for change management practices (Yap & Webber, 2015). Government candidates seeking positions in the senior executive service, for example, attended leadership training (Smith, 2015). The knowledge area of leading change was one of the five required skill sets for senior executive service eligibility (Biddick, 2012).

In military organizations, leadership was taught from the soldier to the Officer regardless of rank and adapted to the responsibilities of the grade level (Humphries & Howard, 2014). Mandatory leadership communication tactics expressed the requirement of unquestioned compliance according to orders (Humphries & Howard, 2014). Organizational requirements and training initiatives required successful change initiatives and formalized training as a common practice (Del Giudice, Yanovsky, & Finn, 2014).

Innovative technologies, especially disruptive technologies, require effective change management practices since disruptive technologies overtake conventional and

current technology practices (Kumar, 2014). The technology replaces a conventional product in disruptive technology adoption. Businesses must adapt to the changes that occur with disruptive technology incorporation and adoption (Biddick, 2012). Cloud technologies introduced the second wave of the Internet with a demand for change in current technological organizations (Kumar, 2014). These cloud services required effective strategic approaches for achieving accreditation and operational authority to operate (Ross et al., 2015).

Cloud-directed procedures established guidance for organizations. Various working groups created, explored, and reviewed this guidance for incorporation in federal policy on an ongoing basis (Van Roekel, 2012). Assessment and Authorization (A&A) was the revised term for certification and authorization of federal systems (Erl et al., 2013). NIST was developing best practices for cloud service adoption (Black, 2012). NIST was also developing additional standards for creating an architectural constraint and taxonomy that incorporate these systems into the enterprise (Badger et al., 2012).

Understanding the Global Information Grid (GIG) was imperative to secure enterprise network systems (Badger et al., 2012). Service-oriented architecture (SOA) has increased interconnectivity of federal information systems. SOAs became the standard design paradigm for evolutionary systems such as virtualization and cloud services (Black, 2012).

Numerous configuration control challenges occurred over the GIG more than over the internet. A challenge existed for maintaining configuration compatibility with systems (Erl et al., 2013). Information technology (IT) standards and the lack of

homogeneity created many information assurance issues (Black, 2012). Rapid deployment of information systems has been approved for Department of Defense (DOD) systems that could not withstand the delays that would be caused by current procedural requirements (Erl et al., 2013). Software complexity and software lines of code in commercial-off-the-shelf (COTS) systems continue to expand (Erl et al., 2013).

Executable source lines of code (ESLOC) measurability facilitated the ability to ensure secure software (Rademaker, Grace, & Curda, 2012). Software complexity and storage size demands remain undetected. Unintentional errors in code occur when monitoring is not continuous, and these errors affect the security and privacy of the data (Werfs, Baxter, Allison, & Sommerville, 2013). The malware in software becomes a vulnerability that was difficult to detect (Lotfi, Belahbib, & Bouhorma, 2015). The development phase poses many security concerns in software code and associated computing environments.

In a cloud environment, the visibility of the software code was not as transparent. Precautions must transpire before deployment to increase protection which includes assessment of the existing security controls (Rademaker et al., 2012). In creating a plan for incorporating the cloud service, the unique considerations of acquiring the cloud service, security of the systems, and implementation of the technology required extensive evaluation of the software and hardware (Lotfi et al., 2015).

Conceptualizing a model for capturing essential documentation to respond to questions about the approach in this study provided a clear picture of integrating the main problem in integrating cloud services. In the conceptual map, the associated research

question analysis provides considerations for adoption. The main issues in this study contain implications affected by cloud adoption centered and focused on the main issues in this study.

A paradigm shift in change management resulted in the successful integration of a variety of cloud services (Van Roekel, 2012). The literature was an exhaustive analysis of the concept map paradigm and construct vehicles necessary to achieve a successful outcome. This research study included evaluating content, existing regulations for compliance, technology challenges, and interviews with change management experts from various business organizations (Battilana & Casciaro, 2012).

Decision-making modeling paired with change management tactics in the formation of a leader competency model (Chakhar, Ishizaka, Labib, & Saad, 2016). This modeling strategy integrates concepts that facilitate the adoption of cloud services. Predictive analytics require modeling data based on exploration, selecting and evaluation of resources, and assigning a deployment model. In this study, resources require an evaluation of the literature (past theoretical models of change and current practices), plus leadership as a catalyst for change by introducing a leader competency model (Baskarada, 2014). Dominance models provide a means of further insight on the exploration of decision-making in group dynamics (Chakhar et al., 2016).

Interviewing change management experts from various business entities resulted in new knowledge for strategic integration of cloud services. The recorded interviews and a canonical assessment explored leader competency modeling theory. A leader competency model incorporates change management initiatives (Grant, 2012). An

initiative in this study was to explore the venue of cloud service integration to identify the possible benefits of the use of corporate university training. There is significant importance in attempting to understand the intricacies of all cloud services in any cloud initiative.

Security and privacy controls assignment invokes a critical consideration for successful cloud adoption (Caytiles et al., 2012). The cloud service, including *big data*, was based on a leader competency model (Baskarada, 2014). This project management plan was designed to be executable in a corporate university (Song & Kang, 2014). *Big data* was a term that has been a metamorphosis from manageable information to information that was difficult to manage especially by its sheer volume (Bahrami, 2013). Innovation required an ability of the organization to facilitate change (Song & Kang, 2014).

Leadership must be able to motivate teams to participate in the cloud service adoption according to a plan (Hogan, 2014). An underlying and tumultuous effort to maintain the status quo was a hurdle that must be overcome to provide an effective change management initiative (Waller, Lei, & Pratten, 2014).

Templates furnish a resource to ensure the leader-member model was current, relevant, and up-to-date to facilitate change management success (Song & Kang, 2014). Appendix A depicts an evaluative concept map for decision-making. Appendix A, Figure 2 demonstrates the interaction and relationship required to support effective leadership and decision-making in a conceptual representation (Fazlollahtabar & Saidi-Mehrabad, 2015). This change management and decision-making conceptual representation

synthesized leadership interaction (Fazlollahtabar & Saidi-Mehrabad, 2015). Regulatory effectiveness in implementing cloud adoption was a difficult conceptual goal since the literature has not provided a uniform manner for organizational integration (Hogg et al., 2012).

Conceptual Framework

The use of enterprise education may provide a centralized learning resource for identifying leader competencies (Mirriahi et al., 2015). This conceptual approach in training leaders may provide to be a viable means for standardizing cloud adoption practices among organizations. This identification was applicable for modeling in corporate university settings (Sart, 2014). A flow chart schematic of evaluations that provide a plan in determining the level of focus and environment needs assessment and strategic approaches based on a capability model, serves as a resource for measuring success.

In a corporate university setting, a modality for engaging in challenges and solutions to determine the effectiveness of the adoption was a strategic initiative (Iorga, 2012). Appreciative inquiry contributes to LICM with expertise and viewpoints on models and innovative techniques. Interviewed experts rendered opinions to support strategies in adoption with LICM as the theoretical framework. The conceptual framework provided an aligning approach to cloud adoption in identifying the application of LICM in facilitating favorable standardized outcomes.

Literature Review

Cloud computing was a unique effort since its adoption challenges leaders to reassess the manner the conduct of business (Garrison et al., 2012). Reinforcement of existing practices impedes the effectiveness of decision-making (Farrands, 2012) hampering creative and constructive change opportunities. Adopting a cloud services policy was a new concept introduced by the first Federal CIO, Kundra, and the second Federal CIO, Van Roekel, proceeded with establishing various guidance documents to support the cloud initiative (Van Roekel, 2012). Cloud adoption was a requirement targeting government agencies (Van Roekel, 2012).

The requirement created a flurry of activity from policy makers in the government, industry, military, private, non-profit, and academic organizations (Van Roekel, 2012). The multiple case study explored this requirement to assess and review adoption methodologies that apply in complying with cloud services (Vohra, 2014). The government CIO mandate required consideration of cloud services implementation before the acquisition of additional hardware or software (Van Roekel, 2012). This mandate of required assimilation and evaluation of current literature was available in the public domain on industry standards for virtualization and cloud computing architecture (Biddick, 2012). Strategies furnish an important element in rectifying challenges, implications, architectural constraints, security and privacy concerns, and methodology to achieve adoption for all business organizations.

Cloud adoption has been a challenge for organizations with the advent of the mandate for government agencies to initiate integration of cloud services whenever

possible (Van Roekel, 2012). Government, industry, military, private, non-profit, and academic must remain current with innovations and business practices whereas government agencies must comply with the mandate (Van Roekel, 2012). When technology advances, all organizations require adaptation regardless of regulatory specificity in defining the unique mandates (Van Roekel, 2012). The cloud mandate affects all businesses (Biddick, 2012). Procedures, protocol, standardization, and processes for uniform adoption methodology has been a challenge for all businesses (Ada & Ghaffarzadeh, 2015).

The NIST working groups collaborated to create standards for implementation, however; the procedure for standardized adoption remained elusive (Hogan, 2014). This study provided intuitiveness for businesses on approaches to improve successful implementation. This research was assistive in the decision-making choices for the level of cloud computing adoption needed to achieve mission-oriented goals (Clark et al., 2014).

The Federal Cloud Computing 25-point Implementation Plan established an initiative to identify a strategic approach for adoption of cloud services for government agencies (Van Roekel, 2012). The 25-point Implementation Plan was a product of the efforts of the working groups to begin developing standards for government, industry, military, private, non-profit, and academic representatives to collaborate on the development of guidance (Van Roekel, 2012). Although this was a federal government agency mandate, impacts expanded to all organizations with risks and changes that occurred with cloud technology innovations (Ross, 2012).

The implementation of a cloud services policy (Van Roekel, 2012) exacerbates the problem of attempting to adopt the technology. The absence of procedures made incorporating this disruptive technology into the enterprise a difficult undertaking. Security metrics needed to facilitate security control selection adaptable for the cloud service models (Cheng, Deng, Li, DeLoach, Singhal, & Ou, 2014). Weighted performance requirements in a balanced scorecard provide success metrics based on testing protocol (Daghan & Akkoyunlu, 2014).

NIST formed a working group on Standards Acceleration to Jump Start Adoption of Cloud Computing that invited participants from the public sector to join in the creation of industry standards for cloud computing (Biddick, 2012). OMB provided an implementation plan to reform government information technology approaches based on twenty-five points of evaluation criteria (Biddick, 2012). This plan was assistive in the facilitation and adoption of cloud services (Biddick, 2012).

The Federal CIO's cloud policy changes the way government agencies respond to information technology requirements (Van Roekel, 2012). A mandatory requirement for all agencies required adherence to the policy. All business organizations need to move to the new technology effort to remain competitive and current with today's advancements (Black, 2012). Certification and accreditation of systems require reassessment when authorizing cloud computing systems (Van Roekel, 2012).

Action initiatives furnish an effective methodology for facilitating and implementing positive change in any organization. The government moved into action immediately after receiving the White House mandate to initiate cloud services. As a

result, government, industry, military, private, non-profit, and academic formed various collaborative working groups to facilitate requirements for cloud technologies. There was no adoption model for organizational cultural adaptation; rather, a policy of compliance based on determining risk management which became the basis of the integration effort (Howard, P., 2013).

Black (2012) authored a text for the legal provision on the legislative implications and considerations of the cloud services initiative. This initial assessment of the benefits and risks provided a foundation for evaluating the necessary security controls for cloud service implementation (Kappler et al., 2014). This emerging technology was a means for the business to access scalable, on-demand capabilities thru Internet-based technologies (Ross, 2012). Standardization accentuates goals in quality management for future deployments (Ross, 2012). Expeditious handling procedures may be the subject of future research exploration.

The caveat was the identification of the measures necessary for increased security protections in adopting cloud services. Security metric practices are necessary for remaining vigilant in matching potential threats and vulnerabilities with cloud services before adoption (Ross, 2012). In matching this requirement, risk mitigation strategy was a critical component in the assessment of the implementation of the cloud services (Blank & Gallagher, 2012).

Cloud computing posed unique security risks and required the establishment of security controls and measures to protect this environment (Black, 2012). Conversely, although cloud was disruptive in business continuity, cloud also has multiple benefits

such as cost savings and scalability (Van Roekel, 2012). Leveraging the identifying strategies that optimize acquisition and adoption minimize risk (Gonzalez & Smith, 2014). Risk tolerance levels require thorough assessment when considering cloud integration models (Cheng et al., 2014).

Cloud services require secure adoption. Associated data obligates efficiently with thorough risk assessment and optimal aggregate risk level determinations (Daghan & Akkoyunlu, 2014). The magnification of the benefits of optimal cloud service integration transpires with the reduction of hardware and software purchases that require maintenance, replacement, upgrades, and personnel to operate (Van Roekel, 2012).

Defining the technology of cloud computing required a separation of the ordinary technological advancements and reassessing innovation that can be addressed as the second arrival of the internet (Garrison et al., 2012). The NIST definition of cloud computing provided a comparison of cloud services and deployment strategies (Biddick, 2012). The four service models include software as a service (SaaS), platform as a service (PaaS), and infrastructure as a service (IaaS) the cloud service architectural design that defines the delivery options for these services (Ali, Jing, & Kun, 2013). The deployment models consist of a private cloud, community cloud, public cloud, and hybrid cloud (Biddick, 2012).

Characteristics of a cloud include on-demand, self-service, broad network access, resource pooling, rapid elasticity, and measured services (Biddick, 2012). The development of an e-learning system provides the opportunity to train leaders in cloud adoption strategies using the combination of a PaaS and IaaS service that meets the cloud

initiative. This system provides a venue for facilitating a knowledge base for cloud adoption leadership (Nasr & Ouf, 2012). SaaS demonstration proved effective in the e-learning system for leaders with a standard SaaS service (Nasr & Ouf, 2012).

Establishing an e-learning system at a corporate university for developing cloud baseline construction was feasible for exploration in future studies (Mirriahi et al., 2015). Initial adoption of cloud services remains a difficult undertaking since standardization for adoption and cooperation among the integrator and team must be uniform as a strategic approach. Customization of requirements based on the mission of the organization was addressed in various standards (Ross et al., 2015). Proposed solutions for the problems and issues of security and privacy require fastidious awareness and attention to the prospective implications of virtual environments. The elusive strategic and standardization approach to ensuring adoption and successful implementation remains absent (Ross et al., 2015).

Cloud computing and service-oriented architecture (SOA) must be flexible and scalable with interoperability for dynamic networks (Werfs et al., 2013). SOA was a new concept that represents a generic method for cloud networks (Werfs et al., 2013). Internet Protocol Multimedia (IMS) provided high-quality solutions for new technology approaches in rapid changing services (Werfs et al., 2013). There is significant importance for the assurance of on-demand services and current management growth including cost measures. This assurance was necessary for increased performance, capacity, usability, and manageability (Ross, 2012).

Virtual machines (VM) and associated software (VMware) facilitate the demand from users and minimize the requirement for hardware equipment (Werfs et al., 2013). Live migration was a solution to minimizing resource requirements (Werfs et al., 2013). IMS was a means for increased quality of service (QoS) and integration of services (Werfs et al., 2013). IMS provided architecture capability for integrating multiple services that can be customized to meet the user's needs (Erl et al., 2013).

The third Federal CIO was an executive with the requisite knowledge to support the effort of strategic initiatives (Donovan & Scott, 2015). Tony Scott was a leader representative appointed by the White House. As Federal CIO, a cybersecurity strategy memorandum was prepared to guide executive departments and agencies (Donovan & Scott, 2015). The industry was instrumental in augmenting the efforts of the Federal CIO in identifying strategies that will address the 25-point implementation plan and associated updates (Donovan & Scott, 2015).

Cloud computing was a paradigm that focuses on sharing data over a scalable network of nodes (Werfs et al., 2013). This network includes components, data centers, and web services (Werfs et al., 2013). The network of nodes was called a *cloud* (Erl et al., 2013). The paradigm was designed to share data, services, and information transparently among users on a massive grid (Werfs et al., 2013). Cloud was the platform that provided dynamic resources, virtualization, and increased availability (Erl et al., 2013). Cloud was not associated with a particular technology, protocol, or provider (Werfs et al., 2013).

Applications and data do not reside on the local computer. Applications and data reside instead on a cloud composed of remote servers interconnected using bandwidth

(Werfs et al., 2013). Cloud computing was a new consumption and delivery model for information technology services based on the Internet (Van Roekel, 2012). Cloud involves the provision of dynamically scalable and virtualized resources as a service (Van Roekel, 2012).

The disruptive technology of cloud services requires incorporation whenever possible, in all federal systems (Erl et al., 2013). Securing cloud computing technology was a current dilemma (Badger et al., 2012). The steps for providing cloud services include: define, assess, design, select, integrate, implement, operate, control, adapt, and evolve the systems to accomplish an enterprise implementation project (Ramasubbu et al., 2015).

The assessment process provided an overview of benefits and challenges in introducing cloud services to the enterprise (Erl et al., 2013). NIST standards address the benefits and challenges of cloud services (Ross, Viscuso, Guissanie, Dempsey, & Riddle, 2015). Defining the cloud has been interpreted in many different ways although there was an agreement that a cloud-computing service was a notion of web-based services available on-demand through an optimized and scalable service provider (Erl et al., 2013).

Cloud computing was a source of growth in information technology spending that was increasing in billions by each year (Ross et al., 2015). Service-oriented architecture (SOA) was a decomposition of information technology in an enterprise that was comprised of functional services (Erl et al., 2013). Understanding SOA agreement definitions include the assignment of protections for the consumer. The consumer who

purchases services received a thorough analysis of the service architecture and associated customized design (Erl et al., 2013).

Defining the boundaries of cloud computing was a difficult concept (Erl et al., 2013). Cloud computing required a revision to current security policies especially for remote access and the use of the data over an internet browser (Ross et al., 2015). Challenges exist in a unique manner for security privacy, conducting audits, establishing reporting, and managing systems overall. Intangible systems and the associated system boundaries require the definition of ownership (Ross et al., 2015). The complexity of inter-linkage between a cloud provider and the consumer identifies a vulnerability exploitable to possible hacker infiltration and criminal compromise of the system (Ross et al., 2015).

Renting space at a data center was one necessary feature in cloud computing when infrastructure was managed, for example (Ross et al., 2015). This management of the infrastructure by another entity creates a loss of control by the consumer (Anyan, 2013). Consumer awareness was an important consideration to realize this lack of control of a system that exists with cloud services (Ross et al., 2015). This lack of control was not necessarily the same control that a manager would find in a conventional system with servers and hardware that was tangible and onsite at the consumer location (Abdullah et al., 2015).

Identifying the differences in conventional systems and cloud services provided a perspective that was necessary for asserting security control protections for successful implementation (Ross et al., 2015) to alleviate concerns by the consumer. Data analysis

was an important security component for forensics in cloud services (L). The *what-if* analysis was important for determining a positive and viable, secure state for the cloud services (Lijffijt, Papapetrou, & Puolamaki, 2014).

There was a similarity between internet law and virtual law. In assessing similarities, the importance of cloud adoption practices identifies with the requirements, threats, vulnerabilities, and security measures that exist in the virtual world as opposed to the real world. Preexisting law was applied differently in a new context and governance structure for internet law (Lotfi et al., 2015). Since the virtual law has aspects of the non-virtual world, many of the existing laws apply to internet law. The transferable virtual law criteria considerations indicate the various cloud service law considerations (Lotfie et al., 2015).

Evaluating game theory logic provided perception into virtual law based on characters that exist in games and associated rules that apply to these fictional characters represented by persons through the use of representative characters called avatars (Lotfi et al., 2015). In understanding this behavior, games establish a vehicle for identifying possibilities in the measurement of reality and possibilities based on scenario analysis available in a virtual context (Lotfi et al., 2015). Game theory was an identifiable approach for providing logical progression, however; virtual law recognized in various models of measurement reaches beyond the scope of this study.

Federal Risk and Authorization Management Program (FedRAMP^{SM})

The General Services Administration (GSA) and the Department of Homeland Security (DHS) collaborated to create the Federal Risk Authorization Management

Program (FedRAMP[SM]) to assist in the review of existing cloud systems to determine security and privacy control compliance in risk assessment (Blank & Gallagher, 2012). The literature has identified FedRAMP[SM] as the advisory council and authority for conducting authorization and accreditation of cloud services public, community, and hybrid (Van Roekel, 2012).

The Federal Cloud Computing Initiative from GSA launched FedRAMP[SM] to provide a means for all organizations to obtain security authorization of these cloud systems (Biddick, 2012). The focus targeted vulnerabilities and threats in proposed cloud systems to ensure the achievement of confidentiality, integrity, and availability of information in a secure manner (Erl et al., 2013). Certain government and industry organizations achieved accreditation and authorization to operate from FedRAMP[SM]; the regulatory authority for determining successful cloud adoption (OMB, 2015).

FedRAMP[SM] assessment of systems managed the certification and accreditation process for cloud service systems, however; the actual adoption process remains elusive (Wood, 2014). After reviewing cloud submissions for security and privacy controls, the authority to operate was granted when compliance was met (OMB, 2015).

This GSA-sponsored authority provided a means for organizations to obtain security authorization of their services (Van Roekel, 2012). The requested authority also provided services to the government for authorization and assessment (Van Roekel, 2012). Private clouds receive authorization and accreditation via existing agency policy requirements (Van Roekel, 2012).

GSA served as a catalyst and driver for FedRAMP[SM] review procedures (Van Roekel, 2012). Four phases of development in implementing the goals of FedRAMP[SM] guided the efforts of the government with the completion of phase four in June 2014 (Van Roekel, 2012). A document released on current security assessment procedures from the Office of Management and Budget (OMB) updated assessment criteria and provided additional guidance for security and privacy in the cloud.

These procedures included educating business and industry on procedures and address concerns before the operational stage. The procedures also provided for the launching of an initial operating capability and providing for the security authorization package offerings for cloud services. These procedures are a result of authorization and assessment (A&A) of industry submissions; and, the creation of a sustainable operational level with published security controls (Loock, Staake, & Thiesse, 2013).

The assurance of security and privacy controls for an established organization permits the organization to share this information with other organizations. Control implementation has not, however; provided standardization solutions to the level intended since the mission of each organization drives the need for particular customized controls. The acquisition policy of cloud technologies and the associated accreditation and authorization of systems was continually under development and improvement (Van Roekel, 2012).

FedRAMP[SM] continues furnishing guidance policy for certification and accreditation review (Black, 2012). The ongoing guidance provided direction, however; no final processes or procedures became fixed in implementation criteria for uniform

approaches to achieve certification. Continued improvements demonstrate progress and efforts to alleviate learning procedures and learning curves (Mirriahi et al., 2015).

The current available documentation on comprehending the guidance on FedRAMP[SM] rendered subsequent development of procedures for assessing and authorizing cloud services through GSA (Van Roekel, 2012). The intent of establishing FedRAMP[SM] met the objective for identifying duplication, inconsistencies, and cost inefficiencies with the current security authorization process (Van Roekel, 2012). FedRAMP[SM] established a public/private partnership to promote the advancement of secure information technologies and to advocate innovative system development (Van Roekel, 2012). This organization attempts to facilitate a means for agencies to accelerate the approval of cloud services for authorization to operate by exploring security controls to ensure compliance (Biddick, 2012).

Risk management was essential in the adoption of cloud computing by creating standards and procedures for security authorizations and empowering agencies to leverage the security authorization of various companies (Howard, P., 2013). The FedRAMP[SM] website contained postings of approved authorizations with contact information, type of authorization, and applied methodology (Van Roekel, 2012).

The acceptance of risk became necessary for the organization to achieve a compliant system. An agile project plan serves as a possible resource for capturing the documentation and progression, for example (Walczak & Kuchta, 2013). Industries attempt to assist agencies seeking advice. Many industries sought guidance and advice from legislative regulations (OMB, 2015).

Organizational Theory

Goal setting was a measurement tool that assists in theory building for adoption technologies in organizations (Loock et al., 2013). Goal setting was useful for project management planning (Ramasubbu et al., 2015). In this research study, the LICM was a method for providing a means of adoption by applying a strategy to accomplish leader adoption through a project plan (Dane & George, 2014). Implementing change in any organization requires leader change catalysts adept at conquering resistance (Battilana & Casciaro, 2012).

Divergent organizational challenges became extremely difficult to introduce and succeed in implementation (Battilana & Casciaro, 2012). Since all organizations differ in their culture, a common baseline for integrating cloud technologies was necessary for creating the LICM as a catalyst for developing an effective data management plan (Van Wijk et al., 2013). The systems development life cycle (SDLC) was a software validation approach to ensure proper data management (Goben & Raszewski, 2015). These procedures follow a systematic approach in ensuring developer code testing before implementation of the service model.

Measurement

The weighted average was a form of measurement for identifying success in game theory and strategic interaction with neural networks (Lotfi et al., 2015). The reports generated evaluating perturbations in various studies was a resource for the ethnography (Wall, 2015). A canonical assessment provided an objective scoring to identify a trend in successful change management strategy with a qualitative inquiry by interview (Wall,

2015). The analyzed canonical scale table provided information on interview ratings. Exploration of cultural validity substantiates a realism paradigm (Hardin, Robitschek, Flores, Navarro, & Ashton, 2014).

The various approaches by the preferred leaders identify the applied strategies in cloud adoption. LICM explored these approaches with the results of the leader's cloud adoption strategy. The theories of LICM consist of Lewin's CM, LMX, ICT, and AI change theory (Hardin et al., 2014). Identifying leader transformational change management was necessary for leading change based on a competency model for leader development and decision-making logic that was moral, ethical, and unbiased (Sukru & Mohsen, 2015).

The curriculum was deliverable to validate an action research initiative (Hogg et al., 2012). Leader interaction was not contingent upon the number of followers. The interaction on the effectiveness of the relationship was established to meet goals and the inspiration of loyalty (Schyns, Maslyn, & van Veldhoven, 2012). The achievement of loyalty and adherence to the mission included purpose and prioritization which became an adopted goal by the followers (Schyns et al., 2012).

An organizational setting for leader education was an important consideration in a learning pedagogy to validate the implementation of leader-subordinate integration in any organization (Hollenbeck, McCall, & Silzer, 2012). This integration was deliverable in a corporate university, for example. This analysis of LICM identifies a leader competency model where corporate university training was a possible training location for organizations (Baskarada, 2014). The feasibility of identifying LICM strategies and

educating cloud adopter leadership in a corporate university setting provides an empowerment opportunity to facilitate cloud service integration (Baskarada, 2014).

Modeling with project management theory was a preferred outline for planning with the use of the critical path method (CPM) to achieve the goal of integration by tasking and time constraints (Ramasubbu et al., 2015). Identifying the best or preferred path was reviewed qualitatively in the study by exploring the possibilities of approaches (Ramasubbu et al., 2015).

For future studies, setting theory and values for the Greedy approach to achieve outcomes was an applied approach (Alkalid, Chikalov, Hussain, Moshkov, & Zielosko, 2013). This exploration was not an effort to provide explicit findings in this study for project management outcomes according to Greedy analytics (Alkalid et al., 2013). Scheduling with tasks in project management was challenging (Li, Feng, & Fang, 2014). The greedy scheduling algorithm was a challenging concept to assist in cloud computing adoption metrics (Li et al., 2014).

Agile project management aligns with greedy job scheduling of tasks to plan activities with continuity (Li et al., 2014). Greedy simplification was an assignment of the milestones where a task commences before the completion of the previous task. Greedy permits continuity and agility in project management (Huysmans, Coolen, Talla Nobibon, & Leus, 2015). The study exploration included a review of theory and concepts to determine strategic approaches in answering the research questions.

In exploring the various participant change management approaches, the findings presented to identify LICM with recommendations on training requirements that applied

to future research identified in Chapter 5. Project management modeling was explored for future research in identifying the training protocols for leaders integrating cloud service (Ramasubbu et al., 2015).

Project management theory was often tested with an apropos indicator such as Greedy (Alkalid et al., 2013). This indication of this theory provides that $P = N_{rs}/N_s$ and $R = N_{rs}$ where the "r" was relevant and "s" was selected) for measuring acceptance of software (Alkalid et al., 2013). This example provides a simple application of the Greedy algorithm (Alkalid et al., 2013). Complex variations of the Greedy approach apply to specific software testing protocols beyond the scope of this study (Alkalid et al., 2013). Project management milestone tracking with Greedy establishes algorithmic tracking capability for consideration in future studies (Harris & Raju, 2015). Chapter 5 analysis contains a consideration of project planning for meeting milestones in pre-testing of actual cloud systems for mission compliance and resilience (Huysmans et al., 2015).

In applying Greedy in task assignments, the simple approach of continuity in milestones immediately selected was demonstrated in the project plan. Appropriate task assignments became pre-selected for the planning phase of the project plan (Alkalid et al., 2013). The exploration of project management theory was a resource for this qualitative study. The capability for leaders to implement cloud strategies with the resource application of project management provides the capability to build a strategic initiative (Wall, 2015).

The theoretical approach of combining classical theories as LICM align with the analysis from the participants in ratings for value creation marked qualitatively.

Prediction of results for outcomes was often a procedure to analyze future outcome probabilities obtained from reviewing information using Greedy analysis (Wu, Wang, & Lee, n.d.). Future research on Greedy analytics provides an excellent opportunity for further analysis. Team viewing in Gestalt approaches with Greedy in a pragmatic manner provide a logical framework (Farrands, 2012). In synthesizing this approach, decisions occur in a simplistic manner that was relevant, selected, or not applicable (Farrands, 2012).

Sequence Query Language (SQL) was used to test an occurrence and result to identify possible outcomes based on the database alignment results (Alkalid, et al., 2013). Planning the risk outcome was optimal by establishing the tasks with milestones that reflect leader models in strategic approaches. These important results evaluate historical success in project management theory in creating plans for adoption of technology (Wall, 2015).

SQL was used in programmatic database iterations as a Computer Aided Qualitative Data Analysis Software (CAQDAS) coding effort to identify patterns in interview results (Palys & Atchison, 2012). SQL was a simple database object resource when conducting qualitative inquiries amplified in databases that have a relational design permitting the normalization of fields. This design aligns with CAQDAS in interpreting results from interviews (Humble, 2015).

Project management was matched with strategic approaches based on testing the balanced scorecard analysis as a future research undertaking (Ramasubbu et al., 2015). Attempting to establish resolutions creates a philosophical response to an elusive and

pragmatic question on defining the reality of the internet of things (Pietrzak et al., 2015). Identifying tasks to be accomplished in support of an organizational goal was a strategy explored in this study for future research.

In attempting to define a space in the universe such as cloud services, the illusion of tangible assets in the cloud environment taint the reality (Pietrzak, 2015). The search for tools to answer intangible questions poses a unique problem for cloud acceptance and subsequent adoption. Strategy maps, however; explore the measures, target, initiatives, and probable outcome (Pietrzak et al., 2015). Since this was a multiple case study journey (Yin, 2014), the strategy became the closest estimate for an optimal outcome based on the theoretical principles. The practice of framing the approach to reach the outcome with Gestalt and strategic formation of leader and teams support the ideal relationship building effort of LICM (Hollenbeck et al., 2012). Appendix A, Figure 3 depicts the strategic formation in the diagram.

The strategic goal was to identify planning steps and procedures for developing an LICM to adopt, employ, integrate, and manage cloud technologies based on expert participant experiences and successful approaches (Seidman, 2013). Coding the strategies and project management planning in a rating scheme was a qualitative approach to reviewing the data with substantiation for increased validity in the study (Harris & Raju, 2015).

Patterns of challenges, successful approaches, strategic initiatives, leadership and subordinate interactions coupled with aligning LICM behaviors to explore change management; provided a triangulated research study. There are many challenges

encountered as a leader initiates the effort to adopt a cloud service. Strategic approaches are facilitators of potential success for change management (Burch & Guarana, 2014). Exploration of LICM strategies identified case approaches in cloud adoption based on existing leadership techniques, standards, and guidance. Security and privacy control assignment in organizational environments remains a concern. The standardization of cloud adoption among organizations in a uniform manner to achieve compliance unilaterally remains a challenge. Identifying a cooperative effort that will produce a clear and definitive approach in obtaining the authority to operate requires LICM strategies. These cloud challenges are the subject of future research requiring expansion on documentation that includes guidance, standards, and regulatory authority.

Acquisition Procedures

The examination of current acquisition methodologies resolves the research inquiry on how agency leaders implement the mandatory cloud policy (Van Roekel, 2012). This policy initiative required a reassessment of decision-making processes in the selection of cloud computing services that enhanced availability, accessibility, and secure usage (Farrands, 2012). The CIO's cloud policy (Van Roekel, 2012) changes the way government agencies respond to information technology requirements (Van Roekel, 2012).

Cloud usage was an operational expense (Caytiles et al., 2012). Cost-benefit dissemination occurred from supplier to the vendor with residual benefits to the consumer (Caytiles et al., 2012). Volume discounts offered to the consumer and multi-tenancy provided the same offering and functionality (Caytiles et al., 2012). Usage was an

occurrence from cloud technology resulting from several innovations (Caytiles et al., 2012).

A caveat was that the cloud services save on tangible hardware resource requirements, yet services must apply on very fast networks with high availability of bandwidth causing higher operational costs (Farrands, 2012). Increased speed, flexibility, and performance served as drivers to tempt technology adopters but deters conservative spenders (Caytiles et al., 2012).

Achieving successful cloud services required tactics to manage risk and lead change. Cloud service adoption strategies evolved as the main theme of this study. Cloud services provide a subscription service that permits a savings of hardware, software, and facilitates the reduction of data centers. Identifiable cloud service benefits occur with the reduction of hardware costs, hardware depreciation, and loss of hardware use from obsolescence (Erl et al., 2013).

Cloud networks provide increased speed of connectivity, efficiency in the management of input, the convenience of interface with cloud services, the lowering of hardware and software costs, and reduced downtime (Caytiles et al., 2012). Retrieval of *big data*, storage of *big data*, selection and implementation of appropriate security and privacy controls, plus accreditation and authorization of systems remain as challenges in cloud adoption (Ross et al., 2015). The technicalities are addressed in multiple guidance documents however; the standardized approach remains elusive and the organizational choices for leaders requires consideration. Mission-oriented systems require a decision

from organizational leadership on whether to proceed or refrain from choosing cloud services.

Accreditation and Authorization (A&A)

A&A must be timely and effective from an operational and security perspective (Ross, 2012). This perspective required a reassessment that includes certification and accreditation of systems (Ross, 2012). Certification and authorization served as the precursors to nomenclatures replaced by A&A. A&A evolved as a necessity to achieve an authority to operate (ATO). A risk assessment became imperative to determine the effectiveness of the security and privacy controls in protecting the system. A risk assessment requires a review of the system to ensure confidentiality, integrity, and availability. Security and privacy demand compliance before issuance of the ATO (Ross, 2012).

The acquisition process must be redesigned to explore technology purchases to test cloud service feasibility promptly without bottleneck issues (Ross, 2012). Proposed acquisition decisions require revised policies to meet the mandatory cloud initiative. Decision-making required effective acquisition processes to meet agency mission requirements in the selection of cloud services (Van Roekel, 2012). This research provided a methodology for cloud service selection based on effective decision-making (Farrands, 2012). Appendix A, Figure 4 depicts the methodology.

There was a growing problem with network security connections, increased interdependency requirements, service-oriented architecture (SOA) complexities, security metrics, and changing infrastructure (Cheng et al., 2014). Evaluating the cloud

integration challenges evolve as recognizable by metering the infrastructure and establishing collaborative working groups. A pilot project was a measurable tool in assessment capable of incorporation in the working groups. Pilot project facilitation to identify problematic areas aligns with a collaboration of efforts to identify resolution (Ramasubbu et al., 2015). The best practices approach evolved from working groups (Iorga, 2012).

Change management perspectives. Obtaining various perspectives on change required interviewing a variety of business leaders from different organizations (Grant, 2012). Gaps in the literature for a standardized approach and limited leader guidance, result in insufficient coverage for securing systems (Cheng et al., 2014). Multiple information assurance protections, acquisition protocol, and procedures for implementing technologies in an enterprise require extensive assessment (Cheng et al., 2014). A critical component of security metric monitoring provides the necessary information for determining the complexity of cloud adopting and identifying challenges (Cheng et al., 2014).

Software assurance and configuration management require intricate security measures (Werfs et al., 2013). Current policy recommendation might require a balanced scorecard that could explore a strategy for tracking performance and adoption (Pietrzak et al., 2015). The plan of action and milestones (POA&M) measured with associated budget constraints provide security metrics for tracking security performance. A successful implementation effort required an understanding of threats and software vulnerabilities (Werfs et al., 2013). Malware and insider threats need to be included in the assessment so

that policy issues and the systems life cycle coalesce to create proper precautions (Cheng et al., 2014).

A multitude of impasse situations evolved and required addressing of the many challenges of cloud computing. Security and privacy concerns require effective control selection to address the configuration of the cloud service. Security and privacy control assignment contribute to effective risk management. Risk management includes acceptance, avoidance, and mitigation of the risk based on guidance provided by NIST standards. Selection of the appropriate controls was provided in NIST Special Publication (SP) 800-53, revision 4, which provided the listing of security controls and privacy controls needed to secure systems in various locations including the cloud environment (Ross, 2012).

Change Management Theory

Leadership was assigned or emergent, however; leadership (Hogg et al., 2012) was identifiable by followers who perceive the individual as a leader. Leadership was designed to produce change and movement in the organization as opposed to the manager who maintains order and consistency (Dickens, 2015). Visionary leaders offer strategic insight, motivation, and inspiration as change management initiatives with effective communications. The initiatives offered by leaders align with personnel to coalesce in supporting the mission (Battilana & Casciaro, 2012). Social leaders must maintain a friendly, outgoing, courteous, tactful, and diplomatic approach to others by demonstrating concern and sensitivity for followers (Hollenbeck et al., 2012).

The human factor in leadership includes the emotional influences and perceptions of leaders (Melwani, Mueller, & Overbeck, 2012). Emotions convey information about the expresser's role and position based on characteristics (Leet al., 2013). The perceived value of the leader with alternating the subordinates viewed contempt and compassion as a leader trait (Melwani et al., 2012). This leader trait does not necessarily mean that this was a desired trait only that traits exist and are identifiable in leaders (Melwani et al., 2012).

Lewin was a social scientist renowned for his expertise in change management theory (Burnes & Cooke, 2013). The Lewin three-step theory was a method for implementing unfreezing existing procedures, implementing intentional change, and refreezing the changes as a theoretical premise that can be studied, explored, and documented (Talmaciu, 2014). The idea of creating a hypothesis-building and ideological premise (Reeve, 2013) as a fact-finding method was an assistive tool for change management (Grant, 2012).

Change group behavior, group dynamics, action research, and a leader adaptation of sensitivity training to offset prejudice and bias must be applied to resolve the social conflict by facilitating learning in a welcome environment (Burnes & Cooke, 2013). Lewin was known for field theory and the three step model of change (Burnes & Cooke, 2013). He was influenced by Gestalt psychologists and believed that the present situation was maintained and controlled by certain forces (Farrands, 2012). In an organization crisis, this force breaks down and forces a paradigm shift (Hardin et al., 2014).

The nature of group dynamics contains common characteristics. These characteristics include creativity with ideas that are related to the focus of change, thoughtful and insightful responses to familiar inquiries, and full engagement and commitment for participating in a change initiative (Drummond, 2014). Group dynamics furnish related information to contribute to change management idea development. This dynamic challenges the analysis of disputes to Lewin's theory; yet the critics find few reasons to disagree with the premise and overall theoretical foundation established by Lewin to represent replacing current procedures with a recreated change management initiative (Hardin et al., 2014). The theory of change management for application in an organization as recognized by Lewin remains relevant today (Burnes & Cooke, 2013).

Critics of Lewin's theory agree that although the principal of learning and unlearning originated years ago; the theory was similar to current perspectives of change management (Hardin et al., 2014). A need exists for continuity and equilibrium in organizations (Hardin et al., 2014). The article served as a challenge to the theory of change management recognized in this research study. Ironically, the challenge to the theories of Lewin in this article resulted in concurrence with the premise of his conceptual approach with validation and substantiation (Burnes & Cooke, 2013).

Implementing change in an organization required leader change agents effective in overcoming resistance (Zhang, Wang, & Shi, 2012). Change management was also a behavior by implementers of change without leader skills (Hobman & Walker, 2015). When there was a pattern of status quo, the change was more difficult than if the pattern

embraces innovations (Battilana & Caciaro, 2012). Standardization provided continuity in pattern recognition and acceptance (Battilana & Caciaro, 2012).

In a corporate university, new knowledge was continually presented (Yap et al., 2015). Divergent organization challenges contribute to a level of extreme difficulty to introduce and succeed in implementation. A leader that emerges from a cohesive network has greater influence than a leader from outside the network (Battilana & Caciaro, 2012). Corporate university settings prove beneficial in alleviating the alienation that occurs with a major leader change by providing the requisite soft skill knowledge necessary to acquire support (Yap, et al., 2015). Battlilana and Caciaro (2012) described a theoretical link with network and organizational change and the degree of acceptable pressure.

In public organizations, an appearance of legitimacy required a positive demonstration that ethical decision-making was in the interest of the stakeholder (Farrands, 2012). Change agents must adopt this cultural appearance and integrate change effectively without disrupting the image (Battilana & Caciaro, 2012). The application of change agents as a vehicle to facilitate change was the premise for structure within a network (Dickins, 2015).

The greater the increase the change agent required in formulating an opposing force to integrate change was comparable in opposition to the institutional status quo (Battilana & Caciaro, 2012). Change management paired with leader support and team cooperation was assistive in adaptation for new technology such as cloud adoption (Zhang et al., 2012). Team cooperation was essential in facilitating positive social change (Hogan, 2014).

Lewin's foundational and classical theory. Change management meets with resistance in status quo organizations (Battilana & Caciaro, 2012). This initiative required foundational adaptation to Lewins' three-part theory of change management (Burnes & Cooke, 2013). The change required the theory of unfreezing, freezing, and refreezing the processes in the organization. The reinforcement stage incorporates change through leadership change management referred to as the refreezing stage (Mayer et al., 2012). After reviewing various theoretical approaches such as the five discipline approach of Peter Senge, disruptive change management theory by Clayton Christenson and other well-versed change management theorists; an analysis determination was identifiable for selection of the theoretical approach of a classical foundation by Kurt Lewin. Lewin's theory demonstrates the basic change management classical theoretical knowledge required for thorough exploration of the combined theoretical approach of LICM (Talmaciu, 2014).

Lewin's three-step model was a dominate change management theory for over forty years (Burnes & Cooke, 2013). Criticism for the assumption of organizational stability proved useful for small scale change projects yet ignored organizational power and politics top down and management driven (Hardin et al., 2014). The analysis of Lewin was re-appraised and challenged by opposing views and re-asserted as viable for change management (Hardin et al., 2014). This exploration of change management would be a revisit of background and beliefs for identifying a planned approach to change in the Lewin field theory, group dynamics, action research, and the three-step model (Burnes & Cooke, 2013).

Although major developments in organizational change continue, Lewin remains the baseline for establishing cultural change management in an organization (Burnes & Cooke, 2013). Lewin's relevance in today's change management approach remains relevant for organizations (Burnes & Cooke, 2013). His sagacity of applied behavioral science, action research, and planned change applied in research with groups, including dynamics, plus incorporating the discoveries in a method to affect the implementation of change programs.

Leader-Member Exchange Theory

The importance of the leader-member or supervisor-subordinate relationship (LMX theory) as a theoretical approach provided an impetus in understanding leadership (Campopiano & de Massis, 2015). The theory conceptualizes leadership as a process that centers in the interactions between the leader and the follower (Chan & Mak, 2012). The theory was also a dyadic relationship where leaders interact with followers in a collective manner as a group (Hogg et al., 2012). Leader-member exchange was essential to align the vision of cloud adoption in the organization (Burch & Guarana, 2014). This relationship was related to the outcomes in accomplishing the goals of the organization (Burch & Guarana, 2014). Transformational leadership associates with this influence in identifying positive social change as the desired goal that aligns with the mission of the organization.

The leadership style required additional guidance than dictatorial or authoritarian styles (Battilana & Casciaro, 2012). Leaders form vertical linkages with followers to

establish the dyadic relationship (Hurt & Homan, 2013). The exchange between the leader and the member (follower) define the relationship (Gu et al., 2015)

The expansive and negotiated roles occur as fluctuating and changing as the identification of work products (Gu et al., 2015). LMX theory does not discount or change the dynamics of leader traits where the leader remains a change agent that was effective and visionary (Chen, Yu, & Son, 2014). It was the role and exchange between the leader and followers that bends and adapts to meet the goals of the organization (Zhang, Waldman, Han, & Li, 2015).

Personnel management required support and success must be retained while consequences of errors require documentation for a learning experience (Zhang et al., 2015). The leader forms special and unique relationships with each follower and adapts to the interaction needs of each follower (Power, 2013).

In organizations, groups of followers establish an interdependent relationship with the leader. The group dynamics foster a close group with reciprocal influence among all members of the group. In a formal group, a hierarchy based on job descriptions creates a dynamic group with followers establishing roles within the group (Battilana & Casciaro, 2012). High-quality LMX with high commitment level demonstrates benefits of reduced employee turnover, the creation of positive evaluations, and increased organizational commitment resulting in successful goal achievement (Gu et al., 2015). The positive and supportive leader and member relationships foster optimal results in success rate and commitment to the change management initiative (Chan & Mak, 2012).

LMX describes and prescribes leadership (Hogg et al., 2012). LMX fosters the creation of unique, individual relationships that remain group based. LMX theoretical principles also encourage follower commitment, effort, and devotion to the leader in securing cloud services based on a mutual congeniality and respectful encounter in goal setting (Rashmi, Sahoo, & Mehfuz, 2013). It was a strong descriptive theory and validates those who work to ingratiate the leader based on the building of unique relationships for cloud system integration (Hurt & Homan, 2013).

A leader attempts to create relationships with all members of the group individually and coalesce as a team to mutually devote efforts at achieving the goal of cloud computing adoption based on LICM (Hur & Homan, 2013). Each follower has a special relationship with the leader that identifies the relationship as individual yet part of the group (Battilana & Casciaro, 2012).

There was a positive relationship between leader-member exchange (LMX) and the degree of performance (Rockstuhl, Dulebohn, Ang, & Shore, 2012). LMX was fostered by transformational leadership and leader trust (Zhang et al., 2012). Job satisfaction increases with the level of trust in the relationship (Rockstuhl et al., 2012). The leader treatment of subordinates varies according to Rockstuhl et al. (2012). The treatment was directly correlated to the level of social exchange theoretical constructs (Rockstuhl et al., 2012).

A positivist epistemology in the gathering and critique of information that has an observable and measurable approach (Gu et al., 2015). The leader-member attribution process for evaluating attribution assignment correlated with a model called leader-

member exchange quality (Elanain, 2013). This model was a basic foundation for assessing leader and subordinate integration and acceptance of ideas. This foundation was a measurable model that can be adapted, assessed, and combined with a game theory model (Reeves & Wellman, 2012).

Game theory was based on the Nash equilibrium and depicted with Markov chain analysis for analyzing models for result analysis. This analysis was an approach that provided the theory of probability with outcome results using Markov cause and effect analysis. Bias and heuristic decision-making behaviors identify patterns and subsequent resolutions in game theory (Farrands, 2012). Game theory renders a perspective in identifying relationships in leader-member scenarios (Reeves & Wellman, 2012). Game theory was an underlying explorative tactic employable in qualitative case analysis (Reeves & Wellman, 2012). Interview findings and pattern recognition provide common goals and positive outcomes for scenarios (Farrands, 2012).

The LMX theoretical concept provided changes on the effective processes for LMX development and identifies the role definitions (Haynie, Cullen, Lester, Winter, & Svyantek, 2014). This model provided empirical support for a model where the leader and subordinate agree, and the follower provided extraversion with the leader demonstrating agreeableness and personality influences (Schyns et al., 2012).

The objectives recognized in this conceptual model provide an explorative finding in successful interaction with a subordinate path (Gu et al., 2015). The positive approach occurs with the interaction of leader and subordinate (Schyns et al., 2012). Personality leader talent and subordinate interaction provide optimal effects (Gu et al., 2015).

Moderated regression analysis validated the factor analysis and descriptive statistics according to the literature (Haynie et al., 2014).

Member (follower) input was needed to implement organizational change (Zhang et al., 2012). The effect on LMX on congruence and incongruence between leader and follower in traits that affect work motivation and personality was a study for future evaluation (Secil & Seyed, 2015). One essential factor was a dyadic congruence in personality between the leader and follower to affect positive performance resulting in outstanding work products (Zhang et al., 2012). The concept envisioned a strong theoretical premise where a follower engages with a leader demonstrating high proactive personality traits. This synergistic relationship increases the LMX quality of performance and is about the level of proactive behavior (Gu et al., 2015).

Another LMX theoretical approach aligns with the need for proactive follower input for successful performance and changes management success (Hobman & Walker, 2015). LMX theory was an integral aspect of change management success and high-quality performance (Zhang et al., 2012). Certain traits must be embedded in an LMX model such as job satisfaction, affective commitment, and job performance (Gu et al., 2015). This positive state contributes to the organizational self-esteem (Zhang et al., 2012).

Also, dyadic congruence enhances work environments and reduces ambiguity in effort allocation (Gu et al., 2015). In reviewing Zhang et al. (2012), the contributions of LMX adds value to existing knowledge of LMX theory (Zhang et al., 2012). LMX theory correlates with social exchange theory (Rockstuhl et al., 2012). It was optimal to develop

the concepts to achieve a positive relationship between the LMX participants and the object of the performance task (Rockstuhl et al., 2012).

The goals of LMX include transformational leadership, subordinate trust, and job satisfaction coupled with a dedication to the desired outcome of the project (Rockstuhl et al., 2012). Guarding emotional influences and evaluating conveyance of emotional reactions require self-evaluation and interpretation of leader goals to facilitate subordinate understanding (Melwani et al., 2012).

Although specific leaders demonstrated contempt and compassion simultaneously; it was a high level of emotional restraint that was the ideal LMX combination (Melwani et al., 2012). This combination required demonstrating concern and care without exhibiting perceived weakness (Gu et al., 2015). Empirical support for a model where leader and subordinate (member) agree and the follower demonstrates extraversion with the leader demonstrating agreeableness was a model of role definition that was operationally ideal (Haynie et al., 2014).

Intentional-change theory (ICT) and Appreciative Inquiry (AI)

ICT and AI approach combine to provide positive social, organizational change (Reeve, 2013). Increasing emotional intelligence (EI) in leadership (Orduhn & Acar, 2014) and facilitating the vision of the organization provided the groundwork to obtain the desired change in cultural transformation (Orduhn & Acar, 2014). The integrated methodology of AI with ICT strategy serves as a theory that results in organizational change success (Reeve, 2013).

In intentional change theory, coaching of leaders and their respective relationships provided a framework that identifies and nurtures visionary aspects of leadership (Howard, A., 2015). Leaders create a vision of change for the subordinates with an attainable goal (Howard, A., 2015). Many threats to validity in any research study occur and require remediation. Threats include the chosen instrumentation, ambiguity of causal direction and correlation, logic leaps, false assumptions, data collection methodology and interpretation of results (Venkatesh, Brown, & Bala, 2013).

The theory of intentional change theory (ICT) aligns with sustainable leadership supported by behavior that contributes to positive social change as an outcome (Munoz & Encinar, 2014). Sustainable change enhances the reduction of the human environment footprint aligning with the intent of ISO 26000 for corporate social responsibility initiatives (Samy et al., 2015). ICT contributes to the ability to pursue self-organizing behavior in reaching the desired organizational goal as a theoretical framework in LICM (Howard, A., 2015).

It was imperative that sound and effective theory be applied to ensure an unbiased and accurate study (Venkatesh et al., 2013). An exhaustive review of the literature on factors that influence the logic of constructing change theory synthesized with a leader competency model. The ideal model develops to achieve the goal of integrating cloud services in the corporate university (Anyan, 2013).

Intentional behavior changes based on theory development was the foundation for an ideological model (Nelson & Stolterman, 2014). An action research initiative was designed to achieve permanency based on undoing the current cultural status (Hardin et

al., 2014). In understanding intentional change, there exists an imperative to permit action initiatives of undoing the current practice in change management. This management tactic emerges as a necessary change rather than a predictive change that will occur when a circumstance identifies for merited change management (Nelson, 2014). The current practice replaced the strategy with a viable approach to resolution (Nelson, 2014).

Appreciative inquiry was unique in its role in defining principles designed to achieve organizational innovation initiatives and achieve personal transformation among the participants (Orr & Cleveland-Innes, 2015). Appreciative inquiry was a classical theory with a focus on leadership as a theoretical approach to educating leaders for successful organizational results (Orr & Cleveland-Innes, 2015).

The methodology of AI integration with ICT strategy can serve as a theory that results in organizational change success (Reeve, 2013). Yin (2014) specified this case strategy approach as a single, holistic case. A real-life context with the application of two strategic theories and methods apply to increased positive change in an organization. Appreciative Inquiry (AI) alludes to discovery, dreaming of a goal, design to achieve the goal and destiny to manage the goal upon achievement (Reeve, 2013).

The underlying five principles include constructionist, simultaneity, poetic, anticipatory, and positive (Reeve, 2013). The level of the leader's emotional intelligence (EI) has a direct correlation with the success of the implementation strategies of ICT and AI change management (Reeve, 2013). The reactive impulse must be managed and replaced with inquiry and action. Reaction to a work stimulus replaced by proactive planning facilitates appreciative inquiry (Reeve, 2013).

The value of intentional change theory (ICT) was the exploration of the application in an organization by conducting a multiple case study and evaluating the results (Reeve, 2013). The methodology required an analysis of an explored organization in cultural transformation (Reeve, 2013). The link between ICT and appreciative inquiry (AI) as a vehicle to obtain positive organizational change was the intent of the author's research results. This theory in integrated as LICM. Appreciative inquiry uncovers the ability for leaders to transform others by leveraging strategic strengths to identify power to their subordinates (Cooperrider & Godwin, 2015).

Change processes often are slow, difficult, unyielding, and often unsuccessful due to resistance. LICM incorporates appreciative inquiry as a positive social change theory in relationally empowering others to acquire growth (Cooperrider & Godwin, 2015).

In establishing correlations between corporate entities that implement ICT and AI to effect change, this result can occur by emulating the best practices employed by the organization (Reeve, 2013). Emotional intelligence (EI) increased in leadership by addressing issues with proactive approaches specified by scenario forecasting. EI was not necessarily an inherited trait, however; it was a trainable trait identifiable in leader training for strengthening decision-making (Hogg et al., 2012). Training in a corporate university facilitates strengths for leaders in meeting the goals and vision of the organization.

A multiple case study provided the groundwork to obtain the desired change in cultural transformation (Yin, 2014). In identifying the necessity of an approach in integrating the requirement for regulatory compliance, a project plan based on multiple

case study methodology as a viable outcome for approaching success (Song & Kang, 2014). The emphasis in multiple case study analysis required concentration on the application of a theory that results in positive change in an organization, however, the controls for validity need to be strengthened to establish a correlation between success (Reeve, 2013).

Change that has an economic impact was difficult to accomplish (Munoz & Encinar, 2014). The intentional change was leader driven, and when it was economically based, the change required a project plan that includes the expensing of resources to determine the break-even to asset savings point (Munoz & Encinar, 2014). Project planning was a necessary component for an intentional economic change in cloud adoption (Song and Kang, 2014).

Leader-initiated change management (LICM)

Lewin's theory of change management (Burnes & Cooke, 2013); leader-member exchange of leadership influences with subordinates (Anyan, 2013); intentional change theory; and, appreciative inquiry establish the classical theories of LICM (Aryee et al., 2012). The four significant theories of Lewin's CM, LMX, ICT, and AI combine to establish LICM theory. The four synthesized classical theories identify LICM as a theoretical approach for exploring influences of leaders in effective change management leadership for technology adoption (Berkovich, 2014).

The theory of LICM aligns with the strategic pursuits to determine the level of efficiency required in conducting business through virtual connectivity with cloud technologies (Rowlinson et al., 2014). Cloud services provide on-demand technology

access including subscription capability. Cloud includes the capability for managing software usage, sharing resources, and elasticity (Biddick, 2012).

The increased decision-making requirements of leaders provided a method for organizations to use leadership and subordinate relationships to support the integration of cloud technologies by implementing LICM as the catalyst for successful technology integration (Hogg et al., 2012). This integration effort required an evaluation of the mandatory initiative for the adoption of cloud-computing technologies in the federal government. The goal for all organizations to embrace cloud technologies remains a challenge in understanding current requirements and essential guidance within the technology spectrum (Black, 2012).

The need for managing information and reduction on the environmental impact of hardware and associated equipment drove the need for a technology innovation (Wall, 2015). Cloud services provide a means of corporate social responsibility in reducing energy costs and hardware and software expenditures by complying with the international standard of 26000 (Hahn, 2013). Data center consolidation began with an effort to virtualize servers and create an environment where the systems became more efficient in processing information (Van Roekel, 2012). Storage became a daunting task with considerable options for consideration that reflected off-site and virtualization solutions.

Positive Social Change

The International Organization for Standardization (ISO) provided various standards to facilitate cooperation among all nations (Dickens, 2015). ISO 26000 was the standard for corporate social responsibility in supporting change management efforts

(Messnarz, Sicilia, Biro, Garcia-Barriocanal, Garre-Rubio, Siakas, & Clarke, 2014). Reducing hardware and software expenditures results in a reduction of the environmental footprint (Messnarz et al., 2014). The consolidation of data centers, implementation of virtualized environments, security and privacy of information, LICM organizational approaches to cloud adoption, provide positive social change for all organizations.

Cooperation and mutual interest in successful cloud adoption facilitated in a corporate university learning environment for leadership provide a uniformed and strategic approach to mutually conducive outcomes (Hahn, 2012). LICM strategies pave the path for positive social change outcomes. The leader identifies with the relevant personnel to identify relationship exchanges necessary for achieving the goal.

An evaluation of classical and current theory as an integrated approach triangulates four classical theories from Lewin's CM, LMX, ICT, and AI to compare and contrast the experiences and outcomes of representative leaders with the originated theory of LICM. The combination of these four classical theories to form LICM provided a means of identifying approaches for success in adopting the disruptive technology of cloud computing and its associated services (Gonzalez & Smith, 2014). In choosing these classical theories, a combined theoretical approach provided a comprehensive evaluation in exploring change management tactics.

Challenges of Cloud Computing

The NIST definition of computing provided a comparison of cloud services and deployment strategies (Rowlinson et al., 2014). The basic taxonomy of services and deployments provisions capabilities for accessing data (Erl et al., 2013). The federal

government moved toward a decentralized, service-oriented architecture. Conducting assessment and accreditation of systems required adherence to stringent threat and vulnerability criteria to secure virtualized systems (Rashmi et al., 2013). System engineering methods facilitate the protection of systems. Vulnerability scanning of systems identify findings for remediation to protect the data, evaluate the configuration, and determine the level of information assurance (Black, 2012).

Information assurance requires a protection of systems to ensure the integrity, availability, confidentiality, authentication, and non-repudiation of the information contained within the systems (Garson, 2013). Best practices must be adaptable to new challenges which are consistently addressed and developed by NIST working groups. The working groups facilitate the effort to create pertinent guidance for cloud service security, privacy, and integration in business models designed with business use case scenarios (Black, 2012). NIST also develops architectural standards for guidance in identifying a design for cloud service models according to the mission of the organization (Black, 2012).

Exploring various approaches affects the culture of the business in a positive manner and saves taxpayers acquisition costs by limiting purchase requirements for hardware and software (Rockstuhl et al., 2012). There was a valid conceptual ideology for supplementing current policy (Van Roekel, 2012). Policy for the acquisition of cloud services was an important and unresolved current issue that needed resolution (Van Roekel, 2012). A configuration management plan that was supported with software assurance (Werfs et al., 2013) was a necessary and measurable means for providing

effective security metrics for implementation. This metric was documented with a balanced scorecard and project plan (Werfs et al., 2013).

A successful implementation effort required an understanding of threats and software vulnerabilities (Werfs et al., 2013). The assessment includes evaluation of possible malware and preventative measures for insider threats (Ross, 2012). Policy issues and the systems life cycle criteria require compliance (Ross, 2012). A growing problem with network security connections, increased interdependency requirements, service-oriented architectural (SOA) complexities and changing infrastructure increases the need to identify resolutions for constant changes (Ross, 2012).

Action research mobilizes individual leaders to make a change. Action research also becomes an essential element in understanding the capture of the entire perspective for change management. Action research options described social transformation as democratic in its structure and transformational in the practice of analysis, decision-making, and outcome design (Rowlinson et al., 2014). Facilitating a methodology to bring innovations to market was an action research study, for example.

Decision-making and action research complement a study by assisting leaders with a mechanism for evaluating action based on optimal decision theory (Farrands, 2012). Risk assessment, optimization techniques, and forecasting prove necessary to achieve optimal outcomes (Fazlollahtabar & Saidi-Mehrabad, 2015). In project management, forecasting enables the ability to use case scenarios which are common occurrences in cloud adoption (Dane & George, 2014).

Factors that give credence to credibility identified and categorized challenges in each chapter (Hardin, Robitschek, Flores, Navarro, & Ashton, 2014). The absence of bias as an important element in critical writing and obtaining sources objective give credence to the hypothesis that was formulated by the writer (Hardin et al., 2014). The hypothesis uncovers the method for writing in a manner that was objective with a non-heuristic based viewpoint (Hardin et al., 2014). This credible approach applied in this study.

There appears to be a strong correlation between psychological safety and voice in an organization to enhance change management efforts where the follower offers a means of improving the organization without being threatened in disrupting the status quo (Liang, Chien, Farh, C., & Farh, J., 2012). Several interesting hypotheses exist in the article including the theory of correlation between psychological safety and voice behavior characteristics (Liang et al., 2012). Organizational self-esteem and positive relationships interact to determine the level of change management success or failure (Liang et al., 2012. Self-esteem was an important driver in change management (Liang et al., 2012).

The voice of the follower and leader become important catalysts to the driver of the initiative (Liang et al., 2012). The voice enablement of psychological safety in the organization created the absence of fear to speak and the absence of repercussions for initiating opinions (Liang et al., 2012). The interaction with follower and leader facilitates open communication when safety is assured. Open communications among leaders and followers facilitate an understanding for identifying and achieving prospective remedies in change management.

Organizational health was essential for implementing effective change management (Liang et al., 2012). The leader was the catalyst, and the follower must possess a level of psychological safety to voice opinions for the change to be optimal (Liang et al., 2012). The measurement of the study results provided promotive voice, prohibitive voice, psychological safety, the obligation to constructive change, and organization self-esteem (Liang et al., 2012). Control variables included education level, position in the organization, and tenure to provide an unbiased result from the sample population (Liang et al., 2012).

The test provided an additional level of understanding that showed clarity in the importance of organizational receptivity to change (Liang et al., 2012). The synthesis was achieved by understanding that leader intervention as a competency model would be an important factor in the success of change management (Barrick et al., 2015). Also, follower input must not be threatened by voice restrictions which cause an unintended consequence of passive aggressive reactions (Hogan, 2014). These factors must co-exist for the change management initiative to be effective (Grant, 2012).

Follower incentive was necessary to encourage voice although the constant of organization self-esteem must be present (Liang et al., 2012). Self-esteem was a manipulative behavior (Hogan, 2014). This behavior was an important factor in determining its effect on ethical change management (Mayer et al., 2012). Measuring self-esteem overall and psychological safety within the organization recommended for exploration in future studies. Psychological safety enhances communication as discussed in this multiple case study (Yin, 2014).

Fostering leadership traits that contribute to a workable leader competency model facilitated a desirable outcome for this study and presented a subject area for future research exploration. The idea of an optimal leader competency model challenged the research initiative in this study. Exploring positive and negative leadership traits opened the door to a discovery of strategies in uncovering successful options for cloud computing service integration for all organizational types (Mayer et al., 2012). Optimal leader results occur when the strategies employed by the leader align with the goals of the organization.

Axiology, Epistemology, and Ontology

An interactive model consists of goals, a conceptual framework, research questions, methodology, and validity assurances to achieve a viable study. The conceptual framework alluded to multiple case studies (Yin, 2014). An important point referenced in Yin's (2014) text was the search for knowledge that was known as epistemology. Yin, (2013) described the literature review as a stepping stone for the design of the study. Current knowledge was extremely important in a study and must be incorporated into the analysis and quest for new discoveries (Rademaker et al., 2012). Qualitative data analysis using computer assisted software aligns with the classical theories and identifies patterns in the discoveries to assist with new knowledge (Rademaker et al., 2012).

A change management model based on the theories of Lewin's CM, LMX, ICT, and AI was portrayed in the findings in response to the research questions (Lotfi et al., 2015). Leadership training model ideology and associated competencies provide an

opportunity for future studies. The leader model for strategies and standardization serve as a catalyst for technology integration deliverable in the venue of a corporate university (Clark et al., 2014).

Conceptual model development transpired from the identification of current knowledge (Yin, 2014). This conceptual model aligned with expert opinion and experience in change management through interview analysis and assessment ratings. The research design provided a resource for evaluating and choosing a qualitative approach and facilitated the design for a standard checklist to identify attainable research criteria (Rademaker et al., 2012).

Approval requirements coupled with decision-making strategies established an integral part of my epistemological inquiry (Fazlollahtabar & Saidi-Mehrabad, 2015). Identifying the strategies applied in cloud adoption and synthesizing the recommendations and advice from leaders, established a foundation for standardization of procedures regardless of organization type. This adaptability was optimal for delivery of LICM strategies in a corporate university setting. LICM cloud service adoption and current regulatory requirements based on the organizational type provided a framework for facilitating the outcome. Security and privacy selection of controls ensured optimal practices of LICM decision-making and strategic guidance based on this theoretical approach.

Integration of Themes in the Multiple Case Study

Cloud service organizational adoption required effective change management (Wall, 2015). Change management includes decision-making strategy and leader

competencies based on Lewin's CM, LMX, ICT, and AI, which integrated into a combined theory named LICM (Burnes & Cooke, 2013). Game theory modeling serves as a testing vehicle for evaluating decision-making and leader competency. The acquisition requirements integrate the existing policy for cloud services adapted for all businesses and established as a learning plan (Van Roekel, 2012).

The study explored cloud services, federal requirements, leadership change management, model development, and the vehicle of training of leaders for acquisition procedures and deployment models (Van Roekel, 2012). The LICM was a theoretical leader approach in an organization setting. This theory serves as a strategy for cloud adoption. Project plan designs on the study findings provide a basis for future research (Ramasubbu et al., 2015). Case study exploration has been explored in this literature review to identify cloud adoption challenges of security, acquisition, risk, and architectural constraints in implementation.

The qualitative case study approach was the methodology for this study with rigor and validity to ensure data saturation (Houghton et al., 2013). The asset of leaders in organizations provides direction to teams to establish action planning for delivery with a project management plan for cloud adoption (Ifenthaler, 2014). Data saturation occurs with the identification of new knowledge and replication capability of the associated research (Fusch & Ness, 2015).

Ethnography and the multiple case study. A linear procedure from multiple case study research types requires an iterative process of planning, designing, collecting, analyzing, and reporting information (Yin, 2014). The theoretical framework and

conceptual approach build on a foundation for understanding information acquired from interviewees (Goben & Raszewski, 2015). Associative statements, confirmation of information, and the categorization and content initiated a theory based on a grounded foundation (Goben & Raszewski, 2015).

In-depth case study interviews enhanced and deepened the understanding of change management (Romani & Szkudlarek, 2014). In the case of study interviews, the individuals chosen represented an organizational entity in change management implementation (Romani & Szkudlarek, 2014). This implementation research required an open-ended interview to permit exploratory responses to in-depth questions (Romani & Szkudlarek, 2014). The canonical assessment was used at the end of the interview analysis to obtain ratings on the resultant LICM developed as a result of information gathering (Garrison et al., 2012).

A multiple case study provided a story, a process or occurrence that has taken place over a specified time frame on a theme that was of interest to the reader (Yin, 2014). This multiple case study provided unique opportunities for formulating a project management plan with checklists, content evaluation, qualitative coding, and interviews followed up by canonical assessment analysis (Gläser & Laudel, 2013). Cloud innovations require skill in implementation, monitoring, and adoption. Cloud service integration has many unanswered questions (Iorga, 2012).

This research study explored approaches for integration of these services by identifying leadership practices and strategic initiatives to facilitate the adoption (Goben & Raszewski, 2015). The research study contributes to the body of knowledge in

management and leadership with the identification of strategic initiatives in identifying training capabilities to achieve optimal outcomes (Goben & Raszewski, 2015). LICM is an approach of strategic standardization leveraged from the results of this study.

Design for the Cloud

In cloud technologies and data management, the development of theoretical design, definitions of service models, and issues related to integration currently in development (Van Roekel, 2012). As publications and policy develop, the framework of these concepts was an analytical tactic and tool in understanding the newly created information (Wall, 2015).

Case study analysis was a means to determine the foresight for future efforts that benefited the incorporation and implementation of cloud service and data management in corporate entities (Gläser & Laudel, 2013). The theoretical approach was assistive in identifying inferences, analyzing regulatory information and synthesizing results (Gläser & Laudel, 2013). Qualitative coding of the information and prioritizing according to these results, identify perceptive meaning by rating the discoveries as an integrated effort of frameworks (Song & Kang, 2014).

Inferences result from one proposition or statement that was considered true (Hayman, Wilkes, & Jackson, 2012). The same fact was believed to be true for other similar facts with the same generalizations (Hayman et al., 2012). Science was based on inference to a point, however; precedence does not always validate that the same event or occurrence follows (Romani & Szkudlarek, 2014). This inference required scientific

proof with testing to determine the high probability of a repeat of the inference finding (Hayman et al., 2012).

The probability determinants identify patterns for confirmation of a premise (Romani & Szkudlarek, 2014). This research study identifies inferences, however; it was through proof and validation instruments and analysis that determine whether any inference was true (Romani & Szkudlarek, 2014). This analysis was an exploratory effort in the study.

Inferences require synthesis and analysis based on a coding and prioritization methodology to establish correlations and meaning for the study. Content analysis (Cho & Lee, 2014) was one research approach for the multiple case study. The analysis coupled with predictive analytics, game theory models, leader relationship theory and competencies, strategic mapping with the balanced scorecard, and qualitative interviewing of change management experts. The organization types include government, industry, military, private, non-profit, and academic (Lotfi, et al., 2015). The interaction of content analysis in the research study was explored and provided in Appendix A.

Case studies unite various approaches in research (Goben & Raszewski, 2015). Case studies designed to transform research into a teaching tool, provide a valuable link in the theory building of research models, as well as the art of teaching, can be transformed to research (Goben & Raszewski, 2015). The LICM was a theory designed for delivery in a corporate university setting with a synthesis of interview discoveries incorporated in the strategy (Seidman, 2013). Narrative lectures and educational efforts presented in a corporate setting expand the success of any learning curve (Smith, 2015).

Coding and Prioritization. In evaluating an existing policy recently developed for cloud technologies and associated data; qualitative coding of the content provided a pragmatic approach in discerning patterns of coverage, logic in content, gaps in the literature for future studies, and defining strategy for successful implementation (Gläser & Laudel, 2013). Patterns in successful leadership practices extend to the interview analysis to identify patterns, practices, and concepts adapted for an LICM (Garrison et al., 2012).

Correlations and Meaning. Many areas exist where insufficient policy requirements and changing implementation concerns affect security and privacy in cloud technologies (Iorga, 2012). Certain products and associated networks have unique requirements. Medical devices require high availability, however; the network requirements are not always compatible with the configuration, for example. Privacy requirements in medical device technologies are paramount in data collection (Kotz, Fu, Gunter, & Rubin, 2015). There was a valid conceptual ideology for supplementing current policy in addressing the various anomalies of product differentiation in security and privacy requirements (Kotz et al., 2015).

Acquisition of cloud technologies remains an important issue that required further policy creation (Van Roekel, 2012). The policy addresses a general organizational population and adaptations need to be available within the content to customize the meaning of the requirements identified in the documentation. Aligning correlations to the organizational mission and providing a suitable and meaningful policy standardized yet flexible for specific requirements which presented a challenge (Iorga, 2012).

Canonical assessment of Change Management Experts. Multiple case study research incorporates approved methodologies into the study (Yin, 2014). Canonical action research addresses real-world problems such as integrating a cloud service approach for all businesses and seeks to find strategies for improvement of organizational performance. This observation is a provisional plan or possible action. The identification of the relevance of the literature and the synthesis in the meaning provides identifiable, practical interventions. These interventions in change management approaches formulate LICM strategies for project management delivery in a corporate university (Goben & Raszewski, 2015).

The interview analysis provided an exploration of theoretical applications with this methodology. Its effectiveness was explored based on case study theory and a conceptual opportunity that required data analysis and business organization (Lijffijt et al., 2014). As a result, the conclusion from the interviews combined with validation of the LICM provides a new addition to the body of knowledge for leadership integration of disruptive technologies (Seidman, 2013). The canonical research methodology was based on action research and was applied to a multiple case study outcome when a design of a plan for implementation developed (Repschlaeger, Proehl, & Zarnekow, 2014).

The best practices approach in integrating cloud services required the selection of eight leader representatives from organizations. Interview results provided extensive insight depicted in the findings. The interview results also determined a thorough understanding of lessons learned, successful approaches, leadership tactics, and

successful strategies, including synthesis of discoveries. The theoretical framework methodology included a combination of classical theories from Lewin's CM, LMX relationship, ICT, and AI defined as LICM for this study.

LICM was an approach for aligning experiences with classical theories. A table will capture the discoveries assessment of canonical action research methodology depicted by a self-designed qualitative value scale. This weighted average analysis represented the discoveries in the study captured in Chapter 4. Rating the participant responses and applying the synthesized discoveries as a strategic approach for planning was provided in this study. Leader strategies include discoveries as applied to LICM approaches. LICM was assessed qualitatively to determine soft leadership skills in engaging others to achieve a successful cloud adoption effort.

Interview assessment with member checking. The assessments provided an opportunity to glean change management recommendations from the interviews. The LICM adoptive approach fostered incorporation of change management practices. Once the LICMdeveloped as a result of historical change management, theoretical design, and current change management practices; a canonical assessment provided further sagacity from the participants on the suggested LICM for leadership modeling (Del Guidice et al., 2014). Each interview respondent answered the same questions according to the protocol.

The recorded interview with all permissions obtained from each respondent to participate in the study. The transcript recordings captured digitally and summarized furnish insight as a result of the input on change management. Each respondent received

a summary of the interview and verified the content and intent of the responses for member checking validation. The interviewees reviewed the summary, recommended edits if required, and returned the summary with annotations of acceptance or acceptance with edits. Completed and verified edits and changes finalize member checking validation. Member checking completion requires a summary review from each participant in the study for content validation (Harper & Cole, 2012).

Agile project management and ethical decision-making. Decision-making and action research complement the study by assisting leaders with a mechanism for evaluating action based on optimal decision theory (Kavis, 2014). Risk assessment, optimization techniques, and forecasting become necessary to achieve optimal outcomes (Fazlollahtabar & Saidi-Mehrabad, 2015). Project management software captures a variety of essential metrics. These metrics include requirements analysis for resource allocation, identification of tasks, elapsed data processing time, and the formation of a project baseline. Adherence to a schedule is paramount and includes the development of milestones and critical path methodology (CPM). The agile schedule identifies appropriate metrics for completing the plan successfully (Ramasubbu et al., 2015). The project management plan required a communications plan and a risk management overview for cloud adoption. (Ramasubbu et al., 2015)

A template was an effective tool for obtaining essential information to support decision-making in risk management leadership (Hogg et al., 2012). The information includes task management that required fastidious decisions in migrating systems to a virtual environment and appropriate modality for the architectural design (Ross, 2012).

The template also includes specific tasks that need to accomplishment for achieving information integrity in the cloud adoption.

The LICM was based on ethical traits adopted by the leader in the establishment of a mutual cooperative effort with team members to support the effort (Zhang et al., 2012). An effective plan includes the establishment of a project communications plan that provided performance measures, change management control, risk management, and organizational acceptance (Ramasubbu et al., 2015).

Meta-Analysis. FedRAMP[SM] established a venue for reviewing discoveries in cloud adoption from various research resource explorations for the feasibility of implementing new technologies using cloud computing. Cloud computing was the subject innovation (Van Roekel, 2012). Chapter 4 of the dissertation contains discoveries from the NIST standards developed by various workgroups as business use cases. The subsequent evaluation of meta-analysis in the findings provided information on business use case evaluation. Also, the FedRAMP[SM] guidance document review includes a commentary.

A review of the scientific literature, content analysis, in-depth interviews, and assessment provide synthesized knowledge for the management of the degree of success with various change management procedures. LICM aligns with change management procedure replication (Grant, 2012). This LICM procedure provided the information on gap analysis for introducing innovation into a training environment for the purpose of adoption by the organization (Wall, 2015).

Data provide theoretical knowledge gathered during the research. The interview outcome aligned with LICM delivery. Interviews obtain information to enhance the leader models in change management (Romani & Szkudlarek, 2014). LICM validated the research findings (Garrison et al., 2012). A canonical assessment was conducted to determine the effectiveness of the LICM approach.

Action Research. Lewin was a classic change management theorist, and action research philosopher was theoretical concepts for implementing change serve as the foundation for this multiple case study (Talmaciu, 2014). The outcome of the study created an impetus for positive social change and required action for adopting new technologies based on the development of an LICM followed by a project management plan of action (Messnarz et al., 2014). Additional strategies for continuous improvement would be the subject of future research based on the conclusions of this study.

The case study guidebooks and risk assessment methodologies provide background information on assessing the content for coding schematics (Cho & Lee, 2014). Case study methodology supports the qualitative study with an inclusion of an analysis of expert participants (Song & Kang, 2014). The canonical qualitative assessment was completed to provide an understanding for LICM based on the participant strategies.

Experts in technology acquisition procedures and decision-making (Fazlollahtabar & Saidi-Mehrabad, 2015) processes provide an understanding in developing a best practice methodology for the CIO's. The concentration in this study focuses primarily on adoption of cloud technologies in all organization types. The government mandate of

cloud service synthesized with LICM through the implementation of a project plan for an organization setting (Baskarada, 2014). The multiple case study explored the progression of efforts to incorporate cloud technologies and explored existing leadership practices adaptable to a leader model (Baskarada, 2014).

The literature synthesizes classical theories in change management (Wall, 2015) and, explore current standards developed by government, industry, military, private, non-profit, and academic experts and workgroups over the past few years was integrated to identify requirements (Fazlollahtabar & Saidi-Mehrabad, 2015). This strategy results in the development of a competency model that include security controls and risk assessment deliverable by a project management plan (Blank & Gallagher, 2012).

Conceptual learning was essential in integrating knowledge for evaluating virtual systems (Mirriahi et al., 2015). Since the systems possess an intangible presence, it was also imperative that the users comprehend usage and access in an epistemological manner that integrates the knowledge (Shotter & Tsoukas, 2014). The change management initiative required decision-makers to understand accessibility with unique distinguishing characteristics (Wall, 2015).

Content perception required an understanding of the system in a virtual environment and included security situational awareness (Shotter & Tsoukas, 2014). Integrating logical architecture as identified in NIST special publications on enterprise architecture combined with empirical possibilities for assessing possible outcomes aligns with proposed optimal system designs (Shotter & Tsoukas, 2014).

The outcome was a risk management effort to identify required security controls for ensuring compliance in the system (Ross, 2012). The system must also be accredited and assessed to obtain authority to operate (ATO). The LICM focus on the leadership and subordinate relationship to facilitate the adoption once the system has met all criteria for secure operation (Mayer et al., 2012). The setting serves as a vehicle to prepare leaders in facilitating effective change management in this exploratory search (Wall, 2015).

Coaches provide performance measures for leaders to identify effective strategies and assess moral approaches (Lorinkova, Pearsall, & Sims, 2013). Leaders empower organizational members to accept change initiatives that result in an effective cloud adoption effort, an objective of this study (Lorinkova et al., 2013). Assessing and synthesizing concepts from classical organizational theorists identify patterns in decision-making for change initiatives (Fazlollahtabar & Saidi-Mehrabad, 2015).

Summary and Conclusions

The government mandate to adopt cloud services was a requirement to implement cloud services whenever possible (Van Roekel, 2012). Policy development commenced as NIST identified issues with adoption and rectified problems and concerns (Biddick, 2012). Change management facilitates adoption with the introduction of an innovative technology (Ifenthaler, 2014). Cloud computing was a disruptive technology with a social initiative that reduces the environmental footprint. Guidance in adoption was a necessary strategy (Fazlollahtabar & Saidi-Mehrabad, 2015).

Subscription services became the replaced location for systems (Song & Kang, 2014). Although NIST provided standards to guide implementation efforts in

organizations; leaders required direction for a standardized approach to ensuring the unique mission and visionary ideals of their respective organization reflected uniform cloud adoption practices. The gap in the literature exploration included seeking new knowledge in the standardization of cloud adoption efforts. The interviews contributed to the body of knowledge from the leaders of representative organizations that led successful cloud adoption efforts.

Goal setting in a project management plan was an outcome approach identified in the literature (Loock et al., 2013). Goal setting was positive and optimal in empirical research (Loock et al., 2013). The supportive effort was for the highest goal to be completed by a team that was cooperative and effectively led which creates a comparable performance success in achievement (Loock et al., 2013). Evaluating and substantiating these approaches results in an assessment of competency approaches (Ross, 2012)

The LICM provide a positive social change for integrating the cloud adoption initiative in any organization in an effective, purposeful, sustainable, and cost-effective manner that aligns with ethical leadership (Fehr et al., 2015). Cloud technologies promote positive social change by establishing economic savings on a continual basis with a reduction in the environmental footprint (Kroeger & Weber, 2014). The integration of a secure and efficient cloud system has the potential of revolutionizing business organizations in a positive manner.

A competency model provided an understanding of the adoption effort of cloud technologies (Sukru & Mohsen, 2015). A leadership competency model was a development product that synthesizes the level of effort in information gathering derived

from the detailed interviews. A leader model provided an approach as a combined analytical process of successful practices experienced by the expert representatives from various organizations. Organization theory compared in parallel to classical combined theories developed from the synthesis and analysis derived from the literature review to establish LICM (Sukru & Mohsen, 2015).

Effective leader models provide strategies that align with the leaders exit plan on cloud adoption to facilitate implementation (McClean, Burris, & Detert, 2013). Training experts to lead change was a resourceful contribution to the literature in meeting the challenges of integrating cloud services into organizations and alleviating risk (Alali & Yeh, 2012). Once trained, the leader facilitates team cooperation in completing the project management plan for cloud adoption (Blank & Gallagher, 2012). The leader competency model combined with an effective project management plan provided the impetus for future research (Baskarada, 2014).

The literature review was complete and thorough in identifying the gap in the literature. Standardization of cloud adoption initiatives was a necessary element for guiding leaders in organizations. Implementation requirements include security and privacy control assignments for cloud adoption (OMB, 2015).

A comprehensive and standardized approach for incorporating a cloud effort on an organizational level required LICM strategies and an understanding of current procedural standards, regulations, and guidance. Chapter 3 provided a methodology for evaluating LICM by interviewing leader representatives of organization types as an exploration of cloud adoption strategies. These strategies provide enlightenment in

organizational goal achievement for cloud adoption. Although security and privacy controls are essential in cloud systems; the absence of a tangible environment presented a unique challenge for organizations which required collaboration and standardization.

Chapter 3: Research Method

The literature review from Chapter 2 identified a gap in the literature in determining a standardized approach for cloud adoption based on organization mission. LICM strategies provide guidance on the success of implementing and adopting cloud services in the organization. The research method is a qualitative multiple case study of exploration of the journey in cloud adoption from its inception as a government Cloud First mandate. The purpose of this study the exploration of change management approaches employed by leaders in identifying effective strategies for integrating cloud technologies in an organization. Four classical theories served as a foundation for constructing the LICM theoretical model (Mitchell, 2014). Extensive evaluation of multiple case study research combines with various approaches and theories for substantiation of the theoretical model and associated concepts (Vohra, 2014).

Research Design and Rationale

This qualitative content analysis multiple case study was an exploration of LICM approaches from provide high-level organizational leaders with effective strategies for cloud adoption (Baskarada, 2014). Four additional supportive research questions in the study included whether current information assurance policies and procedures suffice in addressing threats and vulnerabilities for adopting cloud computing services. The existing documentation review and expert opinion analysis exploration identified various cloud adoption strategies.

The information extracted from the expert interviews combined with coded resources contributed to determining the concepts for integration of cloud technologies

through LICM theory. Leading change strategies align with LICM theory in organizational adoption of cloud services. An ethnographic and exploratory case study design evolved as the optimal choice for pursuing this research study. The content was qualitatively coded and documentation was analyzed (Krippendorff, 2013). Current acquisition approaches required procedural evaluation in the study (Ramasubbu et al., 2015). Effective decision-making must be assessed to determine appropriate security controls and privacy considerations (Fazlollahtabar & Saidi-Mehrabad, 2015).

Several classical qualitative theoretical concepts served as a foundation for the study (Mitchell, 2014). Concepts in strategic approaches document the interviewee assessments for validation of assimilated and synthesized standards and regulations. Highly regarded case studies envisioned systematic and analytical qualitative methodologies (Gläser & Laudel, 2013).

This qualitative multiple case study includes interview assessment, exploratory content review, and, development of theoretical and conceptual frameworks (Mitchell, 2014). The theory required the application of coding the data analysis for consistency based on a weighted average exploration with several iterations that culminated in validation (Lijffijt et al., 2014).

The combination of qualitative interviews and qualitative document coding of relevant published material in this research study resulted in the findings. A synthesized algorithm coding methodology provided an informative resource. Algorithm theory in decision-making requires processes that contribute to effective implementation (Stanciu & Petrusel, 2012). In identifying security and privacy controls, multiple challenges

became discoverable which require remediation in a cloud environment (Kappler, et al., 2014). Despite the establishment of various NIST standards, the absence of specificity to the mission of the organization results in ambiguity of decision-making on assigning controls.

Role of the Researcher

My role was observer-participant in this study. As a member of several NIST working groups responsible for creating standards for cloud services, I have participated in various cloud architecture, cloud security, cloud definition, and other working groups as an effort to accelerate standards initiated at NIST from 2010 to the present. As a participant in these various working groups, my efforts in uncovering the challenges of adoption became a high priority in positive social change initiatives (Appendix E). My goal as an expert in cloud consulting, included advising organizations with guidance on approving, developing, and creating cloud systems in meeting the 25-point implementation plan (Van Roekel, 2012). My participation included contributing to numerous cloud standards. I also was invited by NIST to serve on a cloud forensics panel, and I presented at the Federal Information Systems Security Educators' Association Conference on course development in cybersecurity.

Since 2010, when the White House introduced the Cloud First initiative (Van Roekel, 2012), I have participated with NIST in the creation of multiple cloud standards as a member of global working groups. The first working group was the NIST Cloud Computing Standards Acceleration Group to Jump Start the Adoption of Cloud

Computing (SAJAAC). Our group succeeded in developing and releasing eight standards within a few months after the release of Cloud First to guide organizations.

My expertise was cloud technologies and policy development that spans the years of service as a former government employee, contractor, veteran, business owner, volunteer, college professor and curriculum chair with expertise in instructional design. In addition, I peer review various scholarly articles for AOM where I previously served as an editor for the organization.

Currently; I am a business owner supporting the representative organizations of government, industry, military, private, non-profit, and academic as a subject matter expert in risk management and assessment of cloud systems and am available at the URL of http://www.nmlcompany.net). My assistance has included all organizational types and the study was an exploration on a gap in the literature to provide a contribution to the body of knowledge and further positive social change in identifying LICM.

My advice to various organizations facilitated their efforts in accrediting cloud systems. The roles held in organizations included serving as a subject matter expert in cloud technology, advisor, project manager in enterprise policy development, security control assessor, information systems security manager, information systems security officer, and other cloud integration roles over the past several years.

The change management role in the organization defined the participant selection. These leader participants implemented cloud services based on current policy requirements and developed associated strategies for their associated organization. Based on my experience as a seasoned professional in government, industry, military, private,

non-profit, and academic; I selected a representative change management leader from their respective organization to provide an understanding of the challenges and successes in cloud adoption. The personal affiliation was not a factor in the selection of the participants. The participants' professional expertise in change management drove the selection process.

The gap in the literature reflects the absence of a definitive and standardized approach to change management integration of cloud services (Zhang et al., 2015). This study did not address human behavior. The research draws on the experience and recommendations from leaders in organizations to determine capabilities in strategic change management.

Bias was not an influential factor since the study developed based on leader responses, documentation developed to respond to the absence of cloud integration, and the theoretical approach of LICM as supported by the concepts in cloud service adoption. This research is an independent study without funding or support by any organization. The study was designed to explore LICM assistive theory for cloud service adoption. Any possible influence for an expected outcome was not apropos.

As an independent business owner seeking knowledge and expertise for the benefit of all organizations in cloud adoption; the motivation for this study provided enlightenment for current and potential leaders of cloud adoption. Organizations did not influence the development of the study findings. Organizations did not provide any funding or sponsorship for the outcome of the findings including the absence of any supervisors or sponsors for the study. The researcher provided the research findings

without conflict of interest influence from any person or organization in this study. The intent of this study provided an altruistic knowledge base for integrators and adopters of cloud services.

Methodology

The interviews with various representative leaders explored current strategies to uncover an understanding of LICM in identifying cloud computing adoption challenges and resolutions (Garrison et al., 2012). Verification of the interview content included member checking validation of the responses to the questions. Although LICM was not a guaranteed solution, the use of the synthesized classical theories established a foundation for identifying possible remedies to current challenges.

Assessing independent decision-making methodologies from trained leaders served as a foundation for identifying patterns in decision choices and revealed any support for change initiatives (Ada & Ghaffarzadeh, 2015). To guide organizations, the challenges, and practices by leaders in these representative organizations required supportive and effective implementation tactics (Ada & Ghaffarzadeh, 2015).

Standardized cloud adoption practices identified a gap in the literature (Caytiles et al., 2012). This study addresses the research questions to explore leader interaction with subordinates in cloud adoption practices. A multiple case study was appropriate when a singular explanation does not provide the necessary information required in identifying the problem and challenges identified in the research question (Baskarada, 2014).

The multiple case study explored the challenges of cloud adoption in organizations (Vohra, 2014). Interviewing leader representatives provided resolution to

the research questions. This response to the research question synthesized with qualitative content analysis using CAQDAS software resource tools. Data analysis and business modeling with spreadsheet formula scenario analysis supports the research in exploring leadership strategies (Bazeley & Jackson, 2013). Current cloud standards identify solutions to challenges and identify and substantiate the gap in the literature for standardization of a cloud adoption approach (Caytiles et al., 2012).

Cloud adoption has been challenging for organizations (Caytiles et al., 2012). Cloud integration in organizations sets priorities on security and policy rather than identifying a uniform procedure in adoption. Leaders provide a resource in identifying successful adoption strategies (Van Roekel, 2012). The theoretical model was the result of evaluating the existing literature combined with the testing of an LICM and its feasibility in a corporate university setting. To identify the feasibility of this model, consultation, and evaluation of change management expert opinions integrated as an evaluative process. NIST standards required an accelerated approach to development to obtain methodology for the introduction of cloud technology (Biddick, 2012).

This multiple case study includes an analysis of the organizational adoption of the disruptive technologies of cloud computing and *big data* management (Vohra, 2014). Also, the case study contains a critical assessment of the effect of current culture and the paradigm of virtualized technologies and integration through a designed leadership model (Sart, 2014).

This exploration of the innovative technology provided a means for creating a leader LICM for the delivery of secure management solutions in any organization. The

case study also required expert participant assessments to explore the feasibility of implementing the Federal CIO's cloud service policy by evaluating effective change management practices regardless of organization type or requirement to adopt a cloud service as a mandate.

There was an identifiable gap in the literature in the development of security and privacy policy requirements plus introducing the disruptive technology of cloud and current innovations overall (Samani, Honan, & Reavis, 2015). This new paradigm in technology must be introduced into government, industry, military, private, non-profit, and academic as technology becomes more complex, innovative, and disruptive (Alali & Yeh, 2012). New technologies require strategic models with effective leadership for successful integration (Erl et al., 2013). LICM was a synthesis of four classical theories discussed in this dissertation identified as Lewin's CM, LMX, ICT, and AI; a developed approach for this study designed by the researcher.

In studying the theories of Lewin's CM approach, LMX, ICT, and AI. These theories combined and assessed with a synthesis for establishing a theoretical method identified as LICM. The Federal Chief Information Officer (CIO) for the United States provided direction on cloud adoption for government agencies. Subsequent appointees reflected on the change of technological advancements and the need for socioeconomic improvements that included environmental sustainability (Hahn, 2012).

This research exploration was a multiple case study for cloud adoption that included expert interviews (Baskarada, 2014). The interview evaluations combined with a synthesized exploration of classical and current change management theory for

identifying a leadership competency model for future research development. The case study includes a review of the Risk Management Framework (RMF) as applied to the cloud computing selection process decided by leaders in the organization (Howard, A., 2015). The multiple case study was supported by ethnography approaches based on evaluating the content available in cloud computing challenges (Garrison et al., 2012).

The selection of business use cases qualitatively explored was based on a rating scheme for transferability. Sound procedures substantiate my conclusions through various approaches. The ethnography portion of the study and the interviews include a qualitative approach with classical change management theory. The approaches include a basis for identifying alternatives in change management for leaders based on proposed non-biased LICM theory.

This study required a blend of leadership expertise in decision-making based on a competency model and combined with change management theory (Kavis, 2014). The research study required a review of current regulatory review procedures in securing cloud technologies from an axiological perspective. It was important to be objective to prevent false assumptions, therefore; objectivity was imperative (Hardin et al., 2014). Identifying change management approaches from various resources in the literature provide knowledge on classical and current methods for invoking change in organizations (Lotfi et al., 2015).

Effective planning results in the improvement of the quality of integration of the disruptive technology (Lotfi et al., 2015). Successful adoption strategies contribute to the reduction of the environmental footprint by reducing hardware purchases and establishes

a higher ontological level of existence with a green environmental approach by the adoption of cloud services (Loock et al., 2013). This goal evaluates change management to identify a synthesized LICM for cloud computing adoption.

This research study leverages expert interview analysis of change management leadership. It was empowering for leaders to lead change effectively with strategic decision-making (Fazlollahtabar & Saidi-Mehrabad, 2015). The study critically assesses how leader decision-making choices affect desired outcomes by evaluating a new initiative in introducing a disruptive technology to the organization (Kavis, 2014). The CIO's mandate to consider cloud service adoption before the acquisition of any hardware or software purchase established a paradigm shift in the conduct of business (Van Roekel, 2012). Assessing change management initiatives from previous undertakings and evaluating proposed approaches provided pathways for success with introducing disruptive technologies (Repschlaeger et al., 2014).

Ethnography was an empirically grounded method, exploratory in the process, and predictive or inferential in its intent (Song & Kang, 2014). Content analysis researchers explore data, printed matter, images, sounds, and texts to understand and interpret the meaning for others (Cho & Lee, 2014).

Content analysis was effective with systems analysis, communications, and computations found in content such as computer metadata (Cho & Lee, 2014). The various regulatory authorities, standards, and guidance provide various aspects of providing direction for cloud integrators. In this multiple case study, the methodology

was integrated to support assertions exploratory in nature which identifies strategic approaches optimal in cloud adoption (Cho & Lee, 2014).

Automatic ethnography was a contemporary methodology of its own; evaluating content such as computer text analysis using evaluations which consist of canonical assessment analytics (Wall, 2015). Qualitative findings from interviews and assessments of the content include qualitatively gathering input from experts in this multiple case study. There must be a type of communication content as a primary subject of the investigation for the study to be a multiple case study (Song & Kang, 2014). Leadership development to enhance the capability of integration was the communication modality in this study.

As a pragmatic research, the approach to this study results in an evaluative process of analyzing current documentation on the subject area and synthesizing this information to determine a best practices approach for implementation that creates a positive social change in technological advancements to benefit service delivery to the public. Efficient and innovative technologies facilitate processes that could positively affect the conduct of business operations.

In-depth interviews with selected experts on change management contribute to the knowledge base for the study review. This Delphi group provided change management expertise that was gathered to create a method for establishing an initiative on introducing innovative technologies such as virtualization and cloud computing in a training environment (Abdullah et al., 2015).

Recording and synthesizing interviews from a Delphi leadership group identify a commonality amongst diverse expert opinions. The participant results of perceived leadership strategic approaches, traits plus change management best practices; formulates the foundation for a leadership competency model (Wall, 2015). The participants receive a post-interview synopsis to validate interview gathering documentation. Member checking methodology ensures validation of the interviews (Harper & Cole, 2012).

An effective study that complies with approved methodologies includes interview analysis, existing data, meta-analysis, and discoveries (Seidman, 2013). The existing data and meta-analysis establish a *content analysis* based approach (Cho & Lee, 2014). The applicable resources supplied guidance and methods for exploration of strategies based on current information. The interview of eight experts on change management included acquired data synthesized into the discoveries. This synthesis served as a means of developing best practice methodologies provided in LICM to enhance the delivery of cloud computing services.

The concept of a training center facilitates a possible venue to train leaders in the cloud adoption management effort. In selecting a training center as a vehicle to introduce new technologies such as cloud computing, employable best practice introduction to leaders transpires. LICM influences the outcome of positive social change when applying the classical theoretical framework and conceptual approaches identified in this study (Wall, 2015). This change management initiative was not a multiple case study evaluation of the training organization (Yin, 2014). This multiple case study culminates with the identification of a change management initiative that was

applied in the organizations to facilitate positive social change. Organization change introduced in the corporate university provides leaders with a competency model of LICM for potential cloud adopters (Messnarz et al., 2014).

The multiple case study provides potential benefit for any organization training center based on existing data and information to include the expertise of change management experts and theories from social philosophers (Vohra, 2014). This philosophy requires the culture shock to change that occurs with the introduction of new technologies (Wall, 2015). The change met with apprehension, resistance, and fear of the unknown (Farrands, 2012). Lewin, a social psychologist, had developed a theory for introducing change in organizations, which has a basic construct that was effective when synthesized into the research discoveries (Hogan, 2014).

This research on the multiple case studies and subsequent change management interviews provides insight on successful cloud adoption (Wall, 2015). It was the goal of the study to explore the empirical resolution for introducing a positive social change initiative through effective change management. Effective change management was the catalyst that alleviates or prevents impediments to cloud adoption and provided a uniform approach to implementation. This approach facilitates the creation of a successful organizational cloud service plan.

Participant Selection Logic

Participant selection transpired from the representative organizational government, industry, military, private, non-profit, or academic types. Although the mandate required government agencies implement Cloud First whenever possible; all

organizational types must also comply for competitive reasons to remain current with technological advancement (Caytiles et al., 2012).

A representative from each organizational type was selected to provide a thorough and comprehensive account of the challenges, implications, problems, interactions, and leader efforts plus subordinate exchanges that facilitated cloud adoption in the respective organizational type. This categorization required eight organizational leaders with cradle to grave experience in the implementation of a cloud service project that resulted in adoption.

The selected participants included participants from the pool of NIST cloud computing working groups, experts in early cloud adoption efforts, an expert with ground floor experience in developing FedRAMP^{SM} regulatory guidance, plus military leadership strategists in cloud adoption. Multiple cloud standards identified the possible resolution of cloud computing challenges with guidance for all organizations.

The standardization of the approach for cloud adoption based on the organization type remains unresolved. Standards resolved challenges in adoption such as cryptography in a cloud environment, data storage in the cloud, privacy and security controls, boundaries of the cloud, and the critical framework for ensuring viability and safety of information.

The question on the methodology for cloud adoption to uniform standardization for organizational types remains. This dilemma on standardized approaches was the subject of this multiple case study (Vohra, 2014). Data saturation occurred with the content review of the cloud standards, identification of the gap in the literature, and

effective and thorough interviews of a representative leader in each of the six organizational types (Morse, Lowery, & Steury, 2014). Each interview required a thorough step-by-step inquiry of the procedures and resources required for an effective leader and subordinate relationship to identify the approaches of cloud adoption and the resultant outcomes.

The interview was documented, recorded on tape, and member checking occurs for each interview (Harper & Cole, 2012). The interviews consisted of eight selected leaders in cloud computing adoption. The leaders successfully overcame obstacles and challenges including the development of required standards and guidance in cloud adoption.

A brief questionnaire of potential leaders was provided to organizational leaders to identify the best candidates for the study (Appendix B). It was not randomized selection. The selection criteria provided a facilitated approach to answering the research question. This criterion aligns with experience in meeting the challenges of cloud adoption and supporting corporate social responsibility (Campopiano & de Massis, 2015).

Protection of Human Participants

This study does not require human testing. Participants provided insight on leadership. Interviewees provided discernment based on experience in successful cloud adoptions as high-level leaders. Selected leaders of representative organizations contributed to the body of knowledge on successful strategies for incorporating cloud services in organizations. This cloud adoption research study pursues a new and

innovative approach to technology adoption. Federal agency requirements included adopting cloud services whenever possible.

The development of procedures continues to provide direction on ad hoc actions for security and privacy, however; the initial adoption practice remains elusive without standardization across organizational boundaries. The nature of cloud services requires collaboration among organizations. External connections rely on configured hardware and software compatibility. Ongoing working groups develop industry standards designed for all businesses with volunteer participants from government, industry, military, private, non-profit, and academic organizations.

As an observer/participant, the written product that results from the meetings was the resource for developing the initiatives rather than the interaction of working group members non-evaluative discussions. A synthesis of the findings included selected products from the cloud working groups. The documentation that resulted in the publication of a standard or white paper provided an artifact included in the study as a summary to validate and substantiate the contents of this research.

Instrumentation

Ongoing participation in existing technology workgroups was a basis for information gathering including evaluating, synthesizing, and incorporating best practices achieved by selected experts in cloud services from various representative organizations. A selected group of government, industry, military, private, non-profit, and academic experts was interviewed to identify issues in change management theory.

The selected participant experts led their respective organizational type in successful change management initiatives. The interviewees provided typical practices for each organizational type (Humphries & Howard, 2014).

A recording device captured the interviews on tape which was transcribed and saved from the microphone portable recording device. Once recorded, a summary of the interview was sent to each participant for verification of the responses to support member checking validation (Harper & Cole, 2012).

The original recording was effective and explored for strategic relevance to incorporate successful tactics for the LICM. The LICM developed based on leader-member exchange Lewin's Change Management (CM) theory, Leader-Member Exchange (LMX) theory, Intentional-change theory (ICT), and Appreciative change theory (AI); to provide a theoretical model that aligns with participant success tactics (Gu, et al., 2015). The conceptual model establishes further alignment in exploring cloud adoption strategies. Appendix A, Figure 5 provides the alignment of the various themes.

Open-ended questions elicited strategic goals from the participants. Also, a narrative discussion with the participants on successful projects and implications or challenges that occurred in implementation. The document findings resulted after evaluation and confirmation of the interviews. The assessment provided an objective evaluation of the LICM. Appendix A, Figure 6, provided a decision tree depicting the similarities of LICM and supporting discoveries.

A questionnaire elicited interest from prospective cloud implementation leaders in various organizations to participate in the study (Appendix B). This questionnaire was a

screening procedure to identify eight representative leaders from organization type. The criteria for selecting the eight representative leaders included successful change management initiatives in implementing a cloud service within the organization (Humphries & Howard, 2014). The leader has adopted a cloud service from its inception. This selection of representatives was explored qualitatively to explore the operational criteria in achieving success (Appendix B). The eight interview results and the singular cloud service sample success provided insight to relevant discoveries.

The screening criteria for the participants was to select representative leaders from the six organizational types that responded with positive outcomes based on effective leadership tactics as the primary method of successful implementation results. Leaders received a questionnaire to elicit responses from each of the six organization types (Appendix B). Eight successful leaders identified implementation strategies that identified with LICM in this multiple case study (Vohra, 2014). For purposes of the questionnaire, LICM was reliant upon the individual's vision in successful implementation by responding to the various challenges of cloud adoption with resources.

The respondents received a notice of a request for interview based on the criteria for LICM implementation strategies (Appendix B). The eight interviewees included government, industry, military, private, non-profit, and academic respondents. Interview content captured the exploration on individual sagacity on strategies, approaches, and the ability to overcome challenges in successful cloud adoption.

Audiotape recordings captured the interviews from the respondents. The tape recordings required CAQDAS software analysis to identify themes. After review, each

interviewee received a follow-up call for member checking. Member checking occurred after verification of the content with each interviewee to validate the content and intent of the captured interview (Harper & Cole, 2012).

The foundation of NIST standards was analyzed to determine compliance with the criteria to assess effective implementation (Wijen, 2014). LICM triangulated as the theoretical concept derived from Lewin's CM, LMX, ICT, and AI approaches. The conceptual framework assesses and integrates the interview results with the content. The NIST standards developed for cloud adoption specifically assisted organizations with cloud strategies for implementation and to align with the criteria established in the Cloud First mandate to adopt whenever possible (Van Roekel, 2012).

The use of computer-assisted qualitative data (CASDAQ) for content analysis in this qualitative multiple case study was a resource tool to determine data saturation (Fusch & Ness, 2015). Qualitative data analysis using CASDAQ resources to provide a means of computerized analysis that facilitates thorough evaluation of discoveries (Bazeley & Jackson, 2013). All data collection instruments created by the addressed the research questions in this multiple case study of cloud service adoption strategies.

Procedures for Recruitment, Participation, and Data Collection

Documentation reviewed from the publicly released listing of cloud services in the government achieved federal compliance as a result of FedRAMP^{SM} scrutinization (Wijen, 2014). Selected interviewees included a practitioner of ISO 26000 cloud integration. The interview selection included a representative on social responsibility

(Hahn, 2012). The eight prospective participants aligned their strategies with LICM-approaches.

A military leader was sought after for participation based on successful leadership. A private organization was selected that successfully facilitated cloud adoption. A non-profit entity with successful cloud adoption results and sustainability approaches of ISO 26000 on social responsibility contributed to the pool of resources (Hahn, 2012). Academic representatives identified for their expertise in strategies for expertise in education of leaders were sought after assets in the selection process. Their contributions were continual in the developing of standards and guidance with NIST working groups. These representatives became sought after assets in the selection process. The creation of practices and compliance measures with ISO 26000 became imperative for inclusion in selecting participants from the public and public sector (Hahn, 2012).

The academic representative selected provided guidance in educating cloud adopters. One representative provided insight from the government as a technology official and FedRAMP^{SM} subject matter expert. The interviewees associated with the respective organizations provided a resource pool of purposeful support in developing guidance and standards for leading change of prospective cloud adoption efforts. The selection of representatives integrated a cloud initiative within their respective organization and supported the ISO 26000 for positive social change through sustainability (Hahn, 2012). The participants opted in to provide their name and representative organizational type on the acknowledgment page in this dissertation.

The consent forms contained the option of opt-in or opt-out. The participants signed the forms. Appendix C included the summaries of the participant responses. Member-checked responses ensured the accuracy of the content and validated the intent of the response (Harper & Cole, 2012).

The eight representative leaders for each organization type provided interviews from pre-determined questions open-ended to explore strategic tactics favorable for adoption. The synthesis of the findings compared with the LICM approaches to identify standardized success in cloud adoption. The interview data was collected by audio, transcribed and member checked (Harper & Cole, 2012). The analysis of the interview results, and assessment of the discoveries for commonality of leadership outcomes provided new knowledge on strategic approaches. Each interview required a comprehensive inquiry session with questions prepared in an interview inquiry form.

The analysis of the discoveries and the canonical rating form remained internal to the study findings. This effort provided further credibility to the study by obtaining unsolicited responses and encouraged open-ended participation. The transcripts from the interview contained the question contents and a summary of the responses from the participants. Each of the eight representative leaders from the organization types received a summary of the interview for validating the content and intent of the interview as member checking (Harper & Cole, 2012).

The Chapter 4 validated findings included the formulation of the outcomes. One in-depth interview for each of the eight representatives was conducted and recorded. The interviews require from one to two hours to obtain responses from each of the

participants. This effort required an approximate total of ten hours for obtaining responses to the questions. The canonical assessment was conducted to determine alignment characteristics with LICM to answer the research question. This metric provided the researcher with evaluative interview responses for the study.

Data Analysis Plan

This multiple case study does not require or include hypothesis testing as a traditional approach to the preparation of statistical correlations, variance analysis, and frequencies with outlier anomalies (Lijffijt et al., 2014). Interviews of representative leaders provide integral wisdom from the respective organizational type. This knowledge was a valuable resource and was essential for the study to identify strategies from leaders in adopting technology assets.

Content analysis was either quantitative, qualitative, or mixed method (Krippendorff, 2013). This content analysis study was qualitative. Content analysis with purposive sampling and a qualitative method was the approach to identify organizational challenges from the perspective of a representative leader. Each organization type has unique challenges and leaders provide sagacity on the unique organizational challenge. Transcribed interviews of the eight representative leaders provided support for the content analysis findings (Krippendorff, 2013).

This synthesized analysis with the LICM theoretical model achieved data saturation and added to the body of knowledge (Morse et al., 2014). The content analysis included a completed artifact of an authorized cloud system as identified by FedRAMP^{SM} for a public cloud system authorized for operation within an organization (Appendix E).

A public cloud service that has been authorized by FedRAMP[SM] or authorized within the organization for authority to operate provides insight with content analysis (Krippendorff, 2013). The findings include the operational criteria for approval.

The CASDAQ provided the relationships of nodes and themes that provide a meant for identifying modeling techniques. The tools supplemented the data analysis and business modeling to identify leader strategies based on the discoveries (Bazeley & Jackson, 2013). The proposed leader model provided adaptability on cloud adoption strategies based on the discoveries (Sart, 2014). This discovery on combined methodologies relies on discoveries of an epistemological nature to identify an optimal multiple case study scenario for the adoption of the cloud technology (Yin, 2014).

The exploration of change management was synthesized with expert interview recommendations qualitatively. The result was a viable approach for introducing social change initiatives into the businesses (Messnarz et al., 2014). These initiatives support positive social change based on ISO 26000, corporate social responsibility (Messnarz et al., 2014).

A thorough analysis and comprehensive evaluation of past problems, issues, repercussions, initiatives, and attempts in introducing innovations indicated that the methodologies determined best practice conclusions. Based on failure rate/pass rate, synthesis, philosophical theories, and analysis, the outcome was a solution for introducing new technologies into the business by training leaders at a corporate university (Yap & Webber, 2015).

Innovative technologies require testing before acceptance. Cloud computing technologies indicated a revolutionary change management initiative that required immediate adoption by all federal agencies (Van Roekel, 2012). The innovation of cloud computing was the subject technology for the change management initiative (Van Roekel, 2012). An approach for facilitating adoption through a training location was the outcome of this study. The data-gathering phase of the study included context and delivery methods for the leader change management initiative.

Procedures for exploration of multiple case studies provide approaches for effective change management development (Wall, 2015). This development required defining the recording units (phrases and terms) and categories. The coding of the textual references to CASDAQ software resulted in node identification. The assessment of phrases for accuracy or relevancy provides themes. The relevant rules for consistency coupled with retesting the findings by revising the rules for consistency established coding for consistency.

The resultant interpretation of applicable subject topics assessed in the development of quality assurance conducted on the results was discoverable (Wall, 2015). This discovery ensures thorough testing of the contextual coding (Cho & Lee, 2014). The coding methodology assists in identifying the trustworthiness of the data findings.

Change management representatives from working groups and panel speakers at NIST meetings discussed cloud computing and *big data* progress to serve as a Delphi resource in discussions (Bahrami, 2013). Templates provide an effective resource in

measuring the storage requirements for cloud technologies in managing *big data* (Bahrami, 2013). The recording of the interviews required concurrence from the participants before inclusion in the study after effective member checking (Harper & Cole, 2012). Qualitative coding captured the themes in the study results (Cho & Lee, 2014).

Basic ethnography was a process for classifying textual material. It required an examination of documents, publications, and includes open-ended interviews, part of the multiple case study in this research (Yin, 2014). The interviews provide an understanding of change management from a variety of change management leaders in their respective organization to adopt cloud services (Lockett et al., 2014).

A coding scheme developed qualitatively identified successful practices and challenges in adoption strategies (Cho & Lee, 2014). Organization models provide a foundation for cultural development that was mission oriented (Bertels, Koen, & Elsum, 2015). Business leaders lead change that aligns with the mission (Bertels et al., 2015).

Ethnography was a research method that uses a set of procedures to make valid inferences from the written word or textual print (Cho & Lee, 2014). This method was a firm research approach in the multiple case study on qualitative content analysis studies. Ethnography procedures operate on text interpretation and transcripts of human communications (Cho & Lee, 2014). After documentation, a canonical assessment was an evaluative resource in rating the interviews for patterns and behaviors in LICM for implementation.

This LICM implementation approach for strategy identification provided substantiation of a leader competency model. The weighted average was a basic rating scale used for analysis (Cho & Lee, 2014). Opinions and rating development reflected the input. LICM ratings include assessment in the canonical table based on interview ratings (Cho & Lee, 2014).

Ongoing participation in existing technology workgroups was a basis for information gathering including evaluating, synthesizing, and incorporating best practices achieved by selected experts in cloud services from various representative organizations. A selected group of government, industry, military, private, non-profit, and academic experts was interviewed to identify issues in change management theory (Seidman, 2013).

The selected participants consisted of experts in successful change management initiatives and represented each business organization (Seidman, 2013). Taped and recorded interviews include capture with a microphone portable recording device. Once recorded, each participant received a copy of the taped recording summary for verification to provide member checking validation (Harper & Cole, 2012). The participants validated the intent and content of their respective interview including edit recommendations. The findings included edits, changes, and updates.

The original recording exploration identified strategic measures and successful tactics for the LICM change management initiative in cloud adoption. The LICM was aligned with participant success tactics (Gu, et al., 2015). The presentation of a checklist of open-ended questions screened for potential participation in the study. Also, a

narrative discussion with the participants occurs on successful projects and implications or challenges that occurred in implementation to expound upon the questions. Documentation of the findings occurred after evaluation and confirmation of the interviews. The assessment of the findings provided an objective evaluation of the LICM.

Issues of Trustworthiness

Trustworthiness in a research study require substantiation of credibility, transferability, dependability, confirmability, and adherence to ethical procedures in conducting the research. Ethical procedures require compliance with conduct in ensuring the participants are not endangered, compromised, or harmed by the research study. In this study, the participants are high-level organizational representatives providing strategic input for facilitating cloud adoption. The participants are not the subject of the study rather their input from the interviews is the material gathered, assessed, and synthesized.

Credibility

The multiple case credibility of the findings contributed to the assurance of internal validity. A comprehensive interview approach required the avoidance of bias or hierarchical influence in assured objectivity. Ensuring validity with member checking of interview results and content analysis substantiated and identified gaps in the literature for standardized approaches in cloud adoption strategies (Manganelli et al., 2014). Studies identified through keyword searches uncovered available database resources from scholarly and peer reviewed resources. The theoretical framework exploration of LICM identified conceptual approaches of strategies that facilitated cloud adoption.

Current documented practices identified textual resources for practitioners to facilitate permanent references and alignments with the conceptual framework. Leader representatives by organization type provided interviews. Interviewee transcripts obtained and produced for analysis responded to the research questions. Member checking ensured valid content from each of the eight participants incurred validation from a subsequent follow-up interview (Harper & Cole, 2012). Each participant provided the opportunity to validate, facilitate additional input, or request edits of the information. The information from the transcripts was captured and verified. Two additional interviews provided additional insight to the body of knowledge. These two interviewees contributed to the interviewee purposive selection of resources.

The initial total of six interviewees expanded to eight interviewees to ensure data saturation. The total beyond the required six interviews contributed to the body of new knowledge in organization types. The findings in the interviews included validation by member checking to ensure accuracy and intent of the content.

Transferability

Qualitative case studies provide transferability based on decision-making discoveries (Stanciu & Petrusel, 2012). Leadership expert selection of participants transpired from the results of a questionnaire. Participants for selection included change management leader representatives in organizations. A recruitment of fifty questionnaires to prospective participants served to identify possible interviewees with LICM leadership approaches, successful cloud service implementation, and ISO 26000 positive social change incorporation through corporate responsibility (Hahn, 2012).

The questionnaire identified the top six respondents for selection. The additional respondent selection included the criteria coded from respondents seven to twenty. These prospective selectees provided a pool of resources if any of the chosen six respondents did not accept the invitation or do not consent to participate in the study. An additional two respondents seven and eight supplemented the participant numbered P5 and P6 respectively, as interviewees five and six, defined as hybrid participants, and comprised two unique organizational types. Respondent seven supplemented academic and respondent eight supplemented non-profit organizational representatives.

After selection of the initial interviewees, a pool of secondary respondents supplemented the initial selection of respondents. The secondary respondents encompassed a pool of resources for contingency assignments. Six initial interviewees and respondents seven and eight supplemented the selection resource pool. The selection process required leader identification for each organization type from government, industry, military, private, non-profit, and academic. The representative leader was a change management initiator with authority to oversee cloud adoption in the organization.

A secondary pool of a rated number of seven to twenty representative respondents from government, industry, military, private, non-profit, and academic identified the transferability in the study. This selection resulted in a total of fourteen supplemental resources. The additional interviewees provided a secondary pool of resources. If any of the primary respondents cannot participate in the study, the secondary pool of resources provides interviewees with similar qualifications for participation. The secondary pool of

resources serves to replace any interviewee unable to participate. Screening of interviewees ensured full disclosure and evaluations to provide similar respondents that meet the criteria of a leader in cloud adoption strategies. Each interviewee screened for full disclosure responded to the interview questions to ensure data saturation (Fusch & Ness, 2015). Transferability also includes the addition of respondents when organizational boundaries involve more than one organization.

Dependability

The integration of four classical theories based on Lewin's CM, LMX, ICT, and AI was combined to create LICM theory (Kumar et al., 2014). This triangulation explored classical theories, leader expertise, and applicable document reviews for cloud computing adoption strategies for the respective organization types (Song & Kang, 2014). Substantiation of the data includes member checking with each participant, a cloud service approved either by FedRAMP^{SM} or authorized for operation within the organization, and synthesis of the results of the approaches as compared with LICM. LICM developed from the classical theories of Lewin's CM theory, LMX theory, ICT theory, and AI theory.

Projected success in determining a standardized approach was conducted with a canonical rating of the LICM approach and compared with the strategic approach of each of the eight organization representatives from government, industry, military, private, non-profit, and academic. The strategic approach was rated and aligned with the LICM to facilitate processes for successful change management of the disruptive technology of cloud service adoption (Humphries & Howard, 2014). The evaluation of an adopted

cloud service resulted in the identification of prospective and dependable results reflective of a standardized rating schematic.

Confirmability

Comprehensive interviews conducted with each representative of an organizational type from government, industry, military, private, non-profit, and academic provided insight into the strategies available for cloud adoption. Interview recordings and transcriptions provided insight into strategic approaches from leadership in organizations. Transcribed interview findings included member checking validation to confirm content and intent of the captured interview. The confirmed content analysis served to identify themes from nodes identified with software coding tools (Seidman, 2013). The exploration of approved cloud services provided an artifact which identified an example of a public cloud reviewed by FEDRAMP^{SM} for organizational use. Organizations leverage FEDRAMP^{SM} approved cloud services to assist in meeting security and privacy controls (Erl et al., 2013).

Cloud services categories include type and deployment model according to the standards developed by the various NIST working groups. The resultant standard development identified challenges incurred by organizations overall with a resolution of policy development. The adoption process, however; was a gap in the literature and standardization strategies with leadership guidance was an exploration in this study.

This service selection derived from the pool of representatives of the organization. The selection choice included the operational functions for the identified service. Content analysis was an assessment tool for evaluating the operational criteria canonically

(Krippendorff, 2013). Each organizational conforms to a standard of excellence in change management strategic approaches with the focus on providing service to ensure positive social change as an outcome.

Ethical Procedures

The study exploration included the perspectives provided by the participants. The study included tactics in leadership that resulted in successful outcomes. The information provided by the participants to provide information on their sagacity on cloud adoption strategies. The study contained assessments of information and procedures based on inquiries from selected Delphi experts in leadership tactics for cloud adoption. A questionnaire for participant interest based on successful cloud adoption criteria was distributed to organization types and compared with the expertise of LICM. This study received expedited status from the Review Board since the multiple case study was not a human behavior study (Vohra, 2014).

The participants met all requirements as a Delphi expert resource by questionnaire response and expressed interest in the study. These selected participants met all necessary criteria for successful cloud adoption. Member checking and validation of the content of the interview meet any ethical concern. The secondary resource pool of participants serves to provide for a substitution of any selected interviewee and meet the baseline requirements as an equal in expertise.

Disclosure remains anonymous in the findings for all participants. Respondents opt either in or out in revealing their name and organization as an acknowledgment in the study without disclosure in the findings. The interview content underwent complete and

thorough analysis according to the questions prepared for each respondent. A collection of confidential information did not occur. No conflict of interest occurs since this was an independent study based on providing altruistic information for the benefit of organizations.

The researcher maintained the confidentiality of the participants. The findings did not include the names of the participants. Organizations require cloud service adoption. The study research focused on the organizational type rather than the organization name. The specific organization was not the subject of the findings. Each interviewee signed a release of their name and organization acknowledgment in the study. The findings retained the confidentiality of the respondent name and associated organization.

The researcher was not conducting interviews from any leader that was a supervisor, employee, co-worker, subordinate, or business partner. The researcher maintains storage of the transcripts and results of this study. Storage of the transcripts and tape recordings remain stored for the required years established by the IRB. Transcript shredding occurs after the retention period expires as set by the IRB. The conduct of the interviews occurred at venues convenient for the interviewees within the D.C. metropolitan area.

Follow-up interviews ensured data saturation with member checking completion as demonstrated with answers to the research questions (Fusch & Ness, 2015). The validation of a follow-up interview also provided assurance of discoveries with LICM integration of strategic approaches as described by the participants. Each of the

organization representatives in the study received an interview summary to validate capture of the intended content.

Member checking provided a validation of conclusions in sending the summaries to each respondent requesting confirmation of the interview responses in this multiple case study (Baskarada, 2014). Also, a phone call discussing the summaries was provided to discuss the interview and to welcome any additional comments, advice, criticisms, or changes to the content of the interview. Any edits completed and validated with the respondents occurred individually as a follow-up in the member checking effort. One respondent provided information on policy developed for the agency as a directive and another participant created a strategy on change management by leadership integration and member cooperation with initiatives and incentives.

Dissemination of Findings

The university's scholarly publication organization was the proposed recipient of the findings. Each of the eight change management interviewed participants receives a copy of the findings as an Executive Summary. In multiple case study research, communications can be in any form with attention to the requirements for compliance in qualitative research (Yin, 2014). The content, interviews, working group meetings and collaborations, and panel discussion resulted in guidance for cloud adoption. Analyzing and modeling data with the purpose of formulating a rationale for the data was a contributing methodology (Repschlaeger et al., 2014).

The data resulted in the development of a model for the adoption of cloud computing (Van Roekel, 2012). The outcome was the delivery of a leader competency

training model for incorporating positive social change into the organization when introducing a disruptive technology innovation (Wall, 2015).

The possible methods of delivery included an analysis of the results in digital or hard copy format. The gaps in the literature identified strategies for cloud adoption by leaders in representative organizations. Many unknowns existed in the review of the various strategic initiatives in seeking an optimal outcome (Pietrzak et al., 2015). Responses to applied tactics identified strategic approaches for ongoing planning and synthesis of all available resources to develop a cloud adoption solution (Pietrzak et al., 2015).

A model for implementing a procedure to improve an existing method was an example of an effective qualitative multiple case study with a component for validation (Yin, 2014). The goal of any analysis was to identify key categories and patterns in a qualitative table (Yin, 2014). Canonical assessment data required a qualitative assessment of the content current policy standards and the interviews verify the information gathered to add to validity and interpretation in the study (Garson, 2013).

Empirical investigations and observations included real and apprehending phenomena. The content analysis provided analytical summarization for theory development (Song & Kang, 2014). It was an analysis of the contextual interpretation rather than a detailed numerical report (Garson, 2013).

The content was explored to identify relationships between the observation and the inference in a text. The knowledge was operational and tests the analytical constructs in the multiple case study (Song & Kang, 2014). Interviews determined the level of

LICM from textual resources according to classical theoretical concepts. LICM provides a standalone approach for strategic implementation.

Although ethnography was not analogous to content analysis, the disciplines establish similarities in evaluating procedures (Wall, 2015). In understanding ethnography, it was important to note that ethnography associated with multiple case studies as a supportive methodology (Yin, 2014). The theory that was innovative, current, and applicable was effective to develop an approach that can be contextualized and explored for opinion generation in the development of a possible solution or a theoretical approach that improves the field of study (Daghan & Akkoyunlu, 2014).

Exploration of the content of text references combined with summarization and coding contributed to the findings. The assessment and derivation of various opinions developed from this comprehensive review in a qualitative manner added to the body of knowledge on standardization insight for cloud adoption practices (Gläser & Laudel, 2013). The findings included participant paraphrased responses with summaries provided in Appendix C, Attachments 1-8.

Each interview was member checked with each participant. Any recommended edits by the participant became incorporated and revalidated before completion of the summary. After a thorough review, the combined reviews resulted in a contextual analysis and delved into areas of knowledge without precedence contributing to the body of knowledge. (Song & Kang, 2014).

Summary

Case study categorization as developmental theory and various methodologies coalesce to determine the probable outcome in the research journey (Yin, 2014). Content analysis was an empirical theoretical (Garson, 2013) method; exploratory in its process, and predictive or inferential in its intent. The research included the exploration of printed matter in addition to synthesizing the theory in images, diagrams, and other reference items (Song & Kang, 2014). It was contemporary with a methodology of its own, including a review that required automatically generated documentation based on content, and computer text analysis explored qualitatively (Cho & Lee, 2014).

The interview results and associated synthesis ratings abide by the canonical action research methodology as qualitative analysis (Anyan, 2013). Subsequent articles and papers on recommendations for effective and revised initiatives establish future research initiatives for exploration upon completion of the study. Study results positively affect the process of selecting cloud technologies by providing knowledge from the wisdom of organizational leaders in deciding on acquisition and cloud adoption strategies. This strategic approach provided the requisite knowledge required for the development of an effective project plan that was leader driven.

Documented findings from the participants and validation for accuracy occurred with member checking. The synthesis of information with LICM compared with regulatory protocol directed toward agencies, including, FedRAMP^{SM} guidance, NIST standards, and ISO recommendations. The Cloud Security Alliance (CSA) practices and the European Alliance security agreements (ERISA) on cloud challenges provided

processes, approaches, and new knowledge on strategies for cloud adoption (Lohe & Legner, 2014).

The findings in Chapter 4 include input from the participants and relevant publicly available artifacts of an authorized or approved an operational plan of a cloud system. Advice from the participants on successful strategies was reviewed and aligned with LICM strategic initiatives. Triangulation occurred with the synthesis of LICM. The exploration of change management approaches and strategies applied by the various participants, plus working group products which resulted in NIST standards and guidance disseminated as a regulatory authority. The synthesized findings provided in Chapter 4 explore future research recommendations identified in Chapter 5.

Chapter 4: Results

The purpose of this qualitative multiple case study was the exploration of leader-initiated change management strategies for integrating cloud technologies in organizations. These four theories were based on classical theories from Kurt Lewin on change management, leader-member exchange, intentional change, and appreciative inquiry. The acronym of LICM applies to the combination of these four theoretical approaches. The literature on current practices in change management strategies and decision-making identified the conceptual viewpoint of LICM Stanciu and Petrusel, 2012). The development of LICM was based on my combining the four theories in the literature as a resource in analyzing data and answering my research questions.

The main research question was; does LICM provide the nexus for facilitating cloud adoption thru leader initiated change management strategies for all organizations. The four supporting rsearch questions in the study align with LICM and challenge the sufficiency of current policy and procedures for organization mission. Identifying the gap in the literature and providing the findings of the research study resulted in answering the resarch questions, identifying a gap in the literature, and providing a future research initiative to resolve the general problem.

These four supporting research questions include the following; 1) are current information assurance policies and procedures sufficient to address threats and vulnerabilities for leaders to adopt cloud computing; 2) which metrics guided technology leaders in decision-making for technology adoption through change management; 3) was leader training on effective cloud adoption an effective resource to facilitate the adoption

of cloud service systems; and, 4) which leader change management practices can provide a standardization of cloud service adoption in organizations. The case study research identified new strategic approaches to cloud adoption challenges in the journey of compliance for authority to operate (Van Roekel, 2012). Regulatory organizations supported by the various organizational types continue to develop guidance however; the leader-initiated resource may provide the decision-making element to facilitate success across organizations.

Chapter 4 includes discussion of my research setting, demographics, data collection and analysis procedures, and evidence of trustworthiness. In discussing trustworthiness, I consider issues of credibility, transferability, dependability, and confirmability. I present key study results and then conclude the chapter.

Research Setting

Screening participants established a pool of prospective participants to ensure the availability of purposive respondents (Appendix B). The participants whom I selected included leadership officials who had achieved optimal outcomes in cloud adoption provisioning. Each prospective participant completed an inquiry form by email on successful implementation. I chose participants who could provide insight about their respective organization’s strategies related to cloud adoption.

I selected six interviewees through a phone follow-up and with an email confirmation. Two additional participants were selected to participate in the study to ensure coverage of all organizational types including two hybrid organizations. A total of

eight individuals participated in the study. All participants followed the same protocol and responded to the same interview questions.

I called each of the eight respondents to affirm their interest in participating. I them then discussed and established an optimal and convenient time to conduct the interview based on each participant's schedule. I arranged a timeframe convenient to each participant based on changing schedules. As high-level leaders, last minute meeting requirements, unplanned travel, and late evening scheduling required flexibility. It was also agreed upon to choose an ideal venue for the interview. All eight respondents chose their home office, and each respondent selected

Each participant received information on obtaining a digital summary of the interview. I used a digital recording device to capture each participant's responses to the 20 questions. Each participant agreed to allow at least one hour for the interview. After the final question, I asked each participant to provide advice on cloud strategies. The interview questions were the same for all participants. No outside interruptions or distractions occurred during interviews.

I conducted the eight interviews for a period of approximately one and one-half months. Summaries were sent to each respondent for member checking follow-up to ensure the correct capture of the responses and meaning by the respondents. CASDAQ software analysis of the responses included transcription and validation, edit completion, and affirmation of content by each respondent (Bazeley & Jackson, 2013). Interview content required the use of CASDAQ with an audio transcript capture.

Demographics

The demographic setting in this case study included a choice of venue, date, and time by the participants to respond to the questions. The leaders and officials in organizations selected from the interest form included diverse organizational perspectives for optimal team input from the respondents (Joshi & Knight, 2015). Six original participants represented the six organizational types in this purposeful qualitative case study. Two of the six participants provided a hybrid organizational perspective. The addition of two participants included further detail required to ensure thorough organizational coverage. A total of eight participants comprised the purposive interviewees selected for the study.

Six selected participants represented each of the six organizational types, and two additional organizational participants supplemented the two hybrid participants from the initial selection. Three female leaders and five male leader participants comprise the gender selection in the study. The caliber of the respondents included high-level officials in all of the organizational types.

Respondents elicited from the metropolitan area, and professional groups included NIST working group members. The individual selection included establishing expertise and experienced leaders in cloud adoption for the organizational type to identify successful strategies of LICM. Selection of LICM representatives in cloud adoption provided procedures and decision-making tactics that resulted in the successful integration of cloud services (Gunia et al., 2012). The experience of these officials contributes to the body of knowledge in exploring cloud adoption.

The demographics of the selected officials included a high-level government official at the Chief Information Officer (CIO) level for one of the Joint Authorization Board (JAB) FedRAMP[SM] defense agencies. Another participant included an industry Chief Executive Officer (CEO) with a successful cloud business who also serves as a representative official with the Cloud Security Alliance (CSA) certification body of knowledge. These two participants provided domestic and international perspectives.

Researching for military expertise included a pool of military leaders that demonstrated strategies identified in the screening form. The next selection in the study included a military officer at the Commander level representing the military perspective. This officer identified the importance of mission-centered objectives and efficiency in carrying out technology objectives.

The fourth selection resulted in a private industry official with a successful business in cloud adoption at the CEO level, and the fifth selection was a hybrid non-profit official for a paramilitary organization who had served at the two-star General and Commander level. These individuals responded to the selection criteria and demonstrated high potential for LICM and success in change management in particular.

The sixth selected representative for academics was a hybrid choice that possessed an educational background in cloud adoption plus service as an official in FedRAMP[SM] educating the public on cloud technologies. The sixth participant also served at the government Chief Technology Officer (CTO) level and was selected based on the level of knowledge on cloud policy and training venues conducted for the general public in educating and implementing cloud services.

Participants five and six identify as organizational hybrids. Participant five was a non-profit and paramilitary perspective. Participant six was a FedRAMP^{SM} educator on the cloud for the general public and a CTO for the government. To supplement the hybrid participants; a non-profit Director of a veteran organization and an academic professor included selectees for the study and represented participants seven and eight respectively.

Data Collection

The participant data collection effort required one month to select the participants. An email form was sent to fifty organization leaders eliciting interest in participating in the study. The top twenty respondents determined the members of the pool of resources. Primary participants included six chosen respondents. Fourteen respondents remained from the initial resource pool of twenty. Two additional participants participated in the study with twelve respondents remaining from the initial resource pool of twenty. Selected participants from the resource pool totaled eight participants, and twelve potential participants embodied the resource pool for transferability purposes. The screening form was designed to elicit interest with several criteria questions to identify possible participants.

There included five screening questions for selection. The questions included: 1) Did you the leader in implementing an initiative for cloud services; and, 2) Did you lead a successful effort in adoption. The remaining questions stated: 3) Did you establish change management protocols for implementing the cloud service in your organization; 4) Did you responsible for implementing initiatives in sustainability and reducing the environmental footprint; and, 5) Did an authoritative body approve the cloud service for

operational compliance. Twenty respondents incorporated the pool of resources as a result of responding affirmatively to each of the five screening questions.

The six participants initially selected comprised the selected interviewees based on the screening criteria to represent each organization type. The additional selected fourteen interviewees remained as a pool of possible resources. When two additional participants supplemented the pool of resources, twelve participants remained in the resources pool. The two participants provided hybrid organizational representation to ensure data saturation. These eight participants provided insightful responses on change management strategies to answer the research questions on cloud adoption based on organization type.

To saturate the organizational type input, the two additional respondents supplemented insight in the selection. Cross-categorization from the high-level officials provided perspectives from the organization type as a hybrid for the academic and non-profit responses. The hybrid organizations delved into organizational insight for a combined mission oriented goal and the implications and challenges with a varied organizational type.

The two additional respondents included representatives from the academic and non-profit organizational sector. A total of eight respondents presented their responses to the interview questions with a request for any advice as an open-ended question at the end of the interview. All eight respondents followed the same protocol. The addition of two personnel added a resource to the study for data saturation (Seck, McArdle, & Helton, 2014).

The organization types in the study included government, industry, military, private, non-profit, and academic. Two participants supplemented the hybrid of government and academic. Also, the hybrid of a para-military and non-profit organization was also supplemented by as a participant. The respondents selected provided their perspective on organizational adoption of cloud services. Each participant provided leader change management strategies.

Two additional respondents completed the interviewees. Selection transpired from the fourteen secondary respondents in the pool of possible resources. All interviewees received the same protocol standards for participation. The interviews with these two respondents included member checking in the same manner as the six selected participants. Also, an artifact from a selected participant for the non-profit organization was provided in Appendix C. This chart depicted change management as a process for the respective organization. A release of the chart for informational and publication purposes was provided and retained.

Agency documentation from the publicly released listing of cloud services availed interested adopters in the government to peruse achieved federal compliance providers as a resource (Wijen, 2014). A cloud integrator practitioner of ISO 26000 positive social change included in the interview selection provided insight on the FedRAMP^{SM} initiative (Hahn, 2012). Participant responses identified LICM approaches. A former Chief Information Officer (CIO) in an agency that integrated the FedRAMP^{SM} requirement represented the government perspective. This leader participant discussed the change

management requirements posed by the Cloud First initiative and challenges incurred in adoption.

A successful industry Chief Executive Officer (CEO) was selected to provide recommendations on the impact of cloud adoption and its effect on business trends and competitive requirements. A military leader was sought after for participation based on successful leadership requiring command and control. Private organizations with a successfully facilitated cloud adoption effort included information sought after from a successful small business entity.

Participants with successful cloud adoption results and sustainability approaches of ISO 26000 on social responsibility provided non-profit representation. The non-profit participant was also sought to support cloud as a means of improving the efficiency of the organization with a cooperative effort that was not monetary-driven and contained an altruistic driver for success (Hahn, 2012).

Academic representatives sought for their expertise in strategies contributed to successful development in the public sector on cloud adoption practices and compliance with ISO 26000 (Hahn, 2012). The academic representative associated with the government and industry sector with a purposeful support in developing guidance, standards and accreditation contributed to educating prospective cloud adopters.

The selection of representatives includes integrators of a cloud initiative and representative interest in ISO 26000 for positive social change through sustainability (Hahn, 2012). The eight representative leaders for each organization type interviewed with pre-determined questions open-ended to explore tactics favorable for adoption and

to synthesize common LICM approaches. This analysis identifies standardized success in cloud adoption strategies (Appendix A). The interview data was collected by an audio recording device, transcribed, and member checked. The review of interviewee results and subsequent assessment of the findings defined a commonality of leadership outcomes.

Each interview required a comprehensive inquiry session with questions prepared in an interview inquiry form. Participants respond to the same questions presented in a sequential manner. Participant encouragement provided additional advice on LICM strategies at the end of the interview after responding to all questions. The interviewee advice was synthesized and included as a narrative analysis of the findings.

The transcripts from the interview contained the question contents and a summary of the responses from the participants. These summaries contained the primary points of each interviewee as a narrative representation. Each respondent received and commented on their respective interview as member checking.

One in-depth interview for each of the eight representatives was conducted and recorded. A summary of the interview was provided to each respondent with a follow-up interview to ensure accuracy and intent of the transcribed responses. Each respondent reviewed the summaries and provided input, edits, and confirmed the content of the interview.

The interviews required from one to two hours to obtain responses from each of the participants. These interviews totaled an approximate minimum of ten hours to obtain responses to the questions. The information obtained from the advice commentaries did

not include time frames. Supplemental member checking and follow-up validation did not include estimated time either.

Six selected participants in the interview and a supplement of two additional participants augmented resources for a total of eight participants. The participants led cloud implementation services for several organizational types. The discussion included the interview findings. The home office of each participant provided the interview at a timeframe and date chosen by the participant for optimal convenience.

The digital recorder captured the interview, the and a follow-up member checking effort ensured the accuracy of content and intent of the participant. The respective participant received a summary of the interview for member checking and verification of content. Requested edits completed and validated the interviewee findings.

Each participant consented to the capture of the interview by digital recording. The interviews required approximately 1 to 2 hours as described in Chapter 3. Member checking and confirmation of signed releases for an acknowledgment in the study provided subsequent follow-up actions. An explanation of the option to receive an acknowledgment as a participant permitted each interviewee to release their name and organization in the study. Each participant in the study signed the release to participate, consent to participate, and release of name and organization acknowledgment in the study.

Each participant received an email of the interview summary for review. The participant received the email and interview summary, provided edits as deemed necessary, and validated the summary content. Participants provided advice on their

experiences in cloud adoption from various organizational perspectives. Several participants provided an additional experience beyond their chosen organizational type. Two organizational respondents provided a mixed perspective in the study categorized as a hybrid organization type.

After completing member checking, each participant was briefed about the publication process for the study and subsequent receipt of a summary of the findings. The member checking and verification of the results with the provision of edits as appropriate established the final participatory effort in the study by the participant.

Data Analysis

Data analysis commenced with the interpretation of eight participant responses to a set of questions. At the end of the question and answer interview, each participant was asked to expound on any question and offered an opportunity to provide advice for cloud adoption. This information was captured as “Advice” in the study. Transcription of the findings by question included participant advice. CASDAQ software was instrumental in analyzing the interview findings. As previously described, each participant received a copy of the summary for validation and confirmation of the intent of the content. Member checking was complete with the validation of the content in the summary. Edit completion and updated summaries provided the findings of the analysis. The updated analysis included documentation with CASDAQ software.

The transcribed, verified, labeled, and dated audiotapes plus participant notes contained retention information for inclusion in a stored locked safe. The transcribed participant responses coupled with applicable regulations, standards, and guidance

information provide a synthesis of findings and analysis based on CASDAQ software themes from various nodes (Bazeley & Jackson, 2013). The five themes evolved from the CASDAQ analysis findings.

The canonical assessment was conducted to determine alignment characteristics with LICM to answer the research question. The assessment researcher metric provided findings on patterns of similarity with LICM tactics from the participant respondents. The canonical rating form was not released to the participants to obtain unsolicited responses and to encourage open-ended participation. The rating form identifies the success rating for the strategic approach as based on the participant perspective and the associated rubric of the researcher. The participants identified their organizational type and elaborated on their role and contribution in the organization.

Identifiable categories from the transcriptions and nodes created coded text with the resource software CASDAQ. The spreadsheet captured the categories for analysis. The datasets identified data analysis results in a spreadsheet with coded responses and associated themes based on patterns of strategies. LICM findings provided analytics according to the software analysis with the capture of the results in the spreadsheet. The literature review provided a resource for code interpretation on the validation of LICM as a cloud adoption strategy. CASDAQ software facilitated the analysis of the imported spreadsheet.

This dataset was imported from a data analysis spreadsheet to CASDAQ software to develop the categories addressed in the research questions. Transcripts developed from the interviewee responses and member checked for verification with each participant. The

relational database was a resource for query development. CASDAQ findings resulted from spreadsheet data. The software findings provided further analysis of patterns, trends, and frequencies plus the development of query responses. The major categories in CASDAQ nodes identified the similarity of areas of input from the respondents based on the twenty questions as applied to the organization (Bazeley & Jackson, 2013).

The data analytics development with the creation of a spreadsheet provided a viable data set. A relational database populated with five themes resulted in query development of nodes and emergent theme content analysis. These queries contained an analysis of the themes exported from the database capture to CASDAQ software for comparable analysis. Business modeling verification and triangulation of the data ensured data saturation of the research findings.

The synthesis of this information, combined with LICM, provided the foundation for a project plan to establish a leader model for cloud integration and adoption. Training leaders in change management for cloud adoption in a corporate university as discussed in Chapter 5 remains the subject for further research.

The resource computing tool to assist in the data analysis was CAQDAS (Humble, 2015). Content analysis was the logical construction of the data (Krippendorff, 2013). The review of the literature, assessment of gaps within the literature, research to identify responses to complete data gathering, plus questions and frameworks to provide the knowledge base for the study results provided data saturation.

Decision trees annotate common metric findings annotated from the recording of the transcripts by categories defined in hierarchical denomination from the analysis.

Groupings of similarities included conceptual approaches and complemented the findings in identifying the strategies for alignment with LICM, a theoretical framework. This information was depicted in columnar tables in the findings.

Theoretical and conceptual combine in qualitative case studies to portray findings (Yin, 2014). The absence of a hypothesis with independent and dependent variables constitutes a qualitative study with identifiable theoretical constructs and conceptual evidence (Krippendorff, 2013).

Exploration of concepts and associated inferences contributed to the empirical evidence in the case study. Positive social change in cloud adoption was a conceptual outcome supported by ISO 26000 criteria. This standard aligns with options for standardized strategies in leadership for environmental sustainability in corporate social responsibility initiatives (Simionescu, 2015).

CAQDAS aligns with case study efforts and facilitates the researcher in supporting data analysis (Palys & Atchison, 2012). CAQDAS findings identified patterns, recognition of comparative results, theme assertions, overall categorization among the perceptions implied by the (Palys & Atchison, 2012). CAQDAS content analysis software provided search query capability to match and verify regulatory content and guidance with participant success tactics as applied to the theoretical framework of LICM.

The representative(s) of each organization provided their perspective on cloud adoption strategies based on their experience as a high-level leader. Each of the eight leaders chosen for this study was selected based on their professional organizational level

and success in cloud adoption strategies. The findings included the hybrid responses from the two participants. A total of eight participants provided their perspectives in the study according to experiences from the respective organization type.

CAQDAS analysis included the incorporation of relevant regulations and standards that address concerns of cloud adopters as identified in the literature and concurred by the participants (Humble, 2015). In analyzing the content, the use of descriptive words appropriate to the theoretical and conceptual framework aligns with the research questions (Krippendorff, 2013). This triangulated approach facilitates answering the research questions.

LICM was the theoretical framework of the study combining four classical theories based on Lewin's change management, leader-member exchange, intentional change, and appreciative inquiry. Leader interviews provided insight on the aspects of the LICM framework to identify the strengths of change management strategies based on these theories. The conceptual approach of a framework was analyzed based on identifying successful approaches, required outcomes, and goals for achieving the desired integration of cloud service organizational adoption.

The analysis identifies participant strategies in cloud adoption and facilitates approaches for future research in educating leaders in project management initiatives with LICM. Methodological triangulation includes the exploratory review from each participant's perspective on leadership that culminates in cloud adoption. Interviews aligned with the themes of cloud adoption strategies, leadership tactics, and compliance initiatives.

The working groups from NIST provided various standards that required input from industry experts. As an observer-participant, this participation in contributing to white papers, standards, and speaking on panels at NIST provided insight on the challenges of cloud adoption from this perspective. Regulatory publications developed over the years after the initiative of Cloud First was introduced in 2010. The publications provided direction and guidance for organizations.

This data analysis developed to satisfy analytical techniques to transmit and define code responsive to LICM theory. The application of LICM aligns with concepts for strategic initiatives in the participant findings. Classical change management theories combined to form LICM provide the framework for exploration. The selected leaders have adapted to change in their represented organizations. The findings contribute to the body of knowledge for future cloud adopters.

Member checking validation ensured the summaries captured the content correctly with the intent of the interviewee. Member checking confirms the responses to the questions in the interview and the intent of the participant in the responses. The participants returned the summary with the opportunity to confirm, provide edits or recommendations, and clarifications on the responses. The organization type required eight participants for data saturation.

Each participant was coded according to participant number and assigned to provide input for the coded organizational type. The participants provided their expertise as follows for analysis: 1) government (P1); industry (P2); military (P3); private (P4); hybrid non-profit para-military (P5); hybrid academic educator government (P6); non-

profit (P7); and, academic (P8). The additional hybrid organization interview strategies provide data saturation with the inclusion of a combined non-profit and military perspective and an educational, government perspective that includes FedRAMP^{SM} regulatory authority that aligns with the cloud initiative affecting all organizations.

The coding by organization types was government (GT); industry (IY); military (MY); private (PE); hybrid non-profit para-military (HNPM); hybrid academic educator government (HAEG); non-profit (NT); and, academic (AC). Participant leaders represented the organizations in depth. Each organization type provides a unique challenge that may be remediated by a strategy. Table 1 contains the ratings on strategic leadership approaches in the canonical table as a weighted average. The matrix in Table 2 provides the LICM interview strategies by the organization. Table 3 provides the step tasks and weighted scoring averages. Table 4 contains the total of the weighted averages. Table 5 provided the participant demographics and role.

Table 6 included the type of service and deployment model plus whether the Cloud First initiative was the driving force in moving to the cloud. Cloud First was not the primary driver for cloud adoption according to the participants (Van Roekel, 2012). In Table 7 participant logic and findings are included. Table 8 provided the benefits of the study for a positive social change. Table 9 includes corporate university training suggestions for leader development. Table 10 includes the discussion points for a standardized approach to cloud adoption. Table 11 provides the analyzed categories, nodes developed, and emergent five themes identified with the resulting synthesis identified from the CASDAQ analysis.

The five themes in Table 11 included: 1) a problem diagnosis for change management tactics in adopting cloud technologies; and, 2) action planning for adoption according to LICM (Lewin, LMX, ICT/AI) relationships that include corporate social responsibility initiatives according to ISO 26000. The third theme included: 3) prospective intervention and resources for the implementation and actions required to overcome challenges of relationships including tactics for leading personnel. The fourth theme; 4) an evaluation and metrics for assimilating success and failures used for guidance in decision-making including policies and procedures for secure cloud adoption with the agile project plan and milestones.

Finally, the fifth theme; 5) the specifications of learning outcomes including corporate university training which includes leader training identified the delivery method recommended for future research based on a leader model for strategic, standardized cloud adoption. Responses from the participants are paraphrased and are not direct quotes. Appendix C, Attachments 1-8 provide a summarization of the interviews with validation of member checking. An artifact from one participant is provided in Appendix C, Attachment 9 for informational purposes only and excluded from the findings.

The synthesis and exploration of the four classical theories formed a singular theoretical approach of *Leader-initiated change management* (LICM). Evaluating the classical theories of Lewin's change management (CM), leader-member exchange (LMX), intentional change theory (ICT), and appreciative inquiry (AI) combined with current practices in decision-making provide the theoretical approach (Stanciu &

Petrusel, 2014). The conduct of purposive selection of participants resulted in eight interviewees for this qualitative case study (Yin, 2014). This approach ensures the thorough review of key research themes and exploration of categories (Palys & Atchison, 2012).

Interviews of organizational leaders provide practical wisdom for effective decision-making strategies in overcoming challenges in cloud adoption. Identifying successful implementation strategies in overcoming cloud adoption challenges included a screening of potential leader participants.

Prospective participants received a form requesting interest in the study. This form was designed to elicit interest in participation in the research study as an interviewee. The screening criteria included five questions. The first two questions identified cloud leadership as follows: 1) Did you the leader in implementing an initiative for cloud services; and, 2) Did you lead a successful effort in adoption. The remaining three questions determine qualifications as follows: 3) Did you establish change management protocols for implementing the cloud service in your organization; 4) Did you responsible for implementing initiatives in sustainability and reducing the environmental footprint; and, 5) Did an authoritative body approve the cloud service for operational compliance.

The inclusion of a conceptual framework for evaluating participant representative strategic input ensured validity in this study. This conceptual framework explored the soft skills of LICM and the strategic approaches by leaders. Appropriate guidance and standards supported the legal and regulatory requirements for cloud adoption and

synthesized in the findings. Based on the interviews, coded content analysis, and subsequent analysis; the study findings acquired and triangulated to ensure data saturation and gainful analytics in adoption strategies for cloud adoption with LICM.

Evidence of Trustworthiness

The description of trustworthiness is separate from the evidence of trustworthiness in the study. The evidence for credibility, transferability, dependability, confirmability, and adherence to ethical procedures in this study includes a depiction of evidence based on the methodology. The approaches in the study adhered to trustworthiness criteria.

Credibility

Credibility was a true representation of the multiple case study design. Internal validity was the measurement of the information which provided an accurate portrayal of the answers to the research questions. The selection process was established to request participants in the metropolitan area, however; social media referrals, references, and resources available as a result of expanded Internet capability permitted further resource selection.

Individual member participants in working groups plus the personnel involved in professional practice with cloud services provided a viable pool of resources. The leaders include high-level practitioners with a history of success in cloud adoption strategies. Content analysis was an effective methodology in supporting the credibility of findings based on participant results (Krippendorff, 2013). CAQDAS was a resource tool to

support the coding of the content for credible results in the internet age (Palys & Atchison, 2012).

The interest form provided a screening process for identifying activities applicable to the study. As a result, individuals actively engaged in cloud technologies with extensive experience in change management identified and selected appropriate services for their respective organization. A second form requesting participation was sent as a follow-up to selected candidates for participation. The selected participants provided applicable organizational perspectives to validate representation for each organizational type. The eight participants in the study provided valuable information and new knowledge on strategic adoption of cloud services in the study.

Transferability

LICM was transferable across all businesses and was suitable for implementation by a project plan. A project plan was the subject of future studies. Interviewing leaders from representative organizations provide valuable knowledge to the challenges incurred in cloud computing adoption without a standardized precedence. Qualitative case studies provide transferability with decision-making based on the findings (Yin, 2014). The results of a questionnaire identified successful change management leader representatives adept in the cloud. Organization leader selection was validated and ensured in this study by the screening form that was completed, signed, and returned by prospective participants. The form content evaluation provided meeting participant selection criteria.

In transferability, the detail of the interviews provided a replicable outcome with

similar data gathering approaches (Houghton et al., 2013). Transferability occurs when applying the method as outlined in this study. This capability was based on providing the opportunity to replicate the setting and circumstances of the research study (Houghton et al., 2013).

In this study, transferability detail of the context of the fieldwork was identified in an environment with a similarity in achievement for application to another comparable situation that was justifiably appropriate for the setting (Houghton et al., 2013). Various professional executive leaders provided responses on the level of success in approaching control, comfort, and convenience in cloud adoption.

The content of the interview provided the requisite new knowledge for various strategic approaches to support the theoretical framework of LICM and the conceptual framework in applied leader modeling with agile project management identified in a corporate university setting (Huysmans et al., 2015).

Dependability

Projected success in determining a standardized approach was conducted with a canonical rating of the LICM approach and compared with the strategic approach of each of the eight organization representatives from government, industry, military, private, non-profit, and academic. The strategic approach was rated and aligned with the LICM to provide approaches for successful change management of the disruptive technology of cloud service adoption in identifying dependable results reflective of the standardized rating schematic (Humphries & Howard, 2014).

In dependability, the criterion provided sufficient information for a future

investigator to repeat the study. Data saturation occurred with new knowledge identification and the replicability of the research study. Selection of organizational leaders with successful results in cloud adoption strategies provides a foundation for other adopters of cloud servers.

The discernment of the dependability criterion was reliant on high replication capability. Future researchers are capable of repeating the study based on the current methodology in the study and approaches employed in gathering the applicable evidence. In the exploration of this study, identifying leaders with knowledge in cloud adoption strategies coupled with the validation of the findings by member checking and alignment with current regulations and standards; triangulates the study and provided authentication.

Confirmability

Interviews conducted with each representative of an organizational type from government, industry, military, private, non-profit, and academic provided comprehensive insight. The LICM strategic approach identified in the interview provided recommendations for prospective cloud adopters. LICM aligns with a classical theoretical approach applicable for current strategic initiatives. Coding was conceptual in the analysis that was qualitative and captured by frequency and patterns (Krippendorff, 2013).

A recording device captured the interview. Each transcription received scrutiny by the researcher supported by validation from each interviewee on content and intent. A summary of each interview was prepared, sent to the participant for confirmation, and

returned with any comments or further input as verification. This member checking was a means of confirming the integrity of the documentation. The verified transcripts and content confirmed each participant's input after transcription and before analysis (Seidman, 2013).

The participant will discuss an approved cloud service adoption effort that was achieved thru FEDRAMP^{SM} or approved through the organization (Erl et al., 2013). The identification of the service from the pool of representatives of the organizations was incidental to the study, however; the cloud service complied with the definition provided by NIST standards (Erl et al., 2013). Further validation of change management with LICM for cloud adoption aligned with the findings of the content analysis of regulations, standards, and guidance in this study.

Content analysis was an assessment tool for evaluating the operational criteria canonically (Krippendorff, 2013). Evidence supported with decision schemes include gleaning the analysis from the categories and associated logical progression of results to confirm the findings. Finally, to achieve confirmability, steps to demonstrate that findings emerge from the data and not by predispositions of the researcher. The finding validation assured result accuracy in the methodology of this study.

Ethical Procedures

This research study followed protocol according to the direction of the institutional review board (IRB) criteria. The research design included notification of participant selection based on meeting specific criteria of leadership. Once selected, the participants received a request for participation. A form was included regarding complete

anonymity or the option of an acknowledgement. Individuals who participated in the interviews received an acknowledgement after signing the release.

The release of the participant name as an acknowledgement was not a condition to participate in the study. Interviews were conducted in the same manner for each interviewee and questions were related to the strategic change management success of cloud adoption. Organizational information on operational procedures was not collected and no organizational representative was asked to provide any information that could reflect negatively or derogatory on their respective organization. The study interviewees reflected positively on the organization by each leader in an ethical and trustworthy manner.

Study Results

This qualitative multiple case research study was a collection of strategic approaches from various leaders in cloud computing adoption representative of current organization types. Eight leaders provided responses to various questions including advice on proceeding with cloud adoption as a closing remark. The evidence gathered was an exploration of LICM approach for change management strategies in cloud adoption. Study results included an analysis of the research questions. The use of qualitative coding identified findings for the five emergent themes. The study included future research recommendations.

Triangulation of participant response analysis, emergent themes from the strategies employed by the participants, and identification of resolutions provide new knowledge in cloud adoption. Exploration of the working group white papers and

standards, FedRAMP[SM] guidance, and requirements from the various body of knowledge certification organizations also triangulates the content analysis review in the study to augment the findings of this study. Exploration of positive social change impacts of cloud services in organizations facilitated potential international and national impacts in reducing our environmental footprint.

Qualitative data analysis test results expounded on an exhaustive review of the findings (Bazeley & Jackson, 2013). A conceptual map depicted the theoretical analysis on the specifications of patterns and relationships (Bazeley & Jackson, 2013). As a multiple case study, instances and patterns map to each participant in providing new knowledge and understanding (Bazeley & Jackson, 2013).

The theoretical approach of LICM was incorporated in the research as a framework to identify the application of strategic approaches for cloud adoption. Appendix A provided a conceptual map for establishing cloud adoption tactics. The theories of Lewin's change management approach for organizations, leader-member exchange relationships, intentional change plus appreciative inquiry provide findings to answer the main research question of LICM.

The supportive research questions identify strategic analysis in addressing the adoption challenges of cloud services in an organization. The responses provided depth in the study findings. These research questions and analysis from the participants coupled with the literature for LICM and the regulatory authority was triangulated and provided below:

Research Question 1) Does LICM provide a change management strategy for the cloud adoption organizations.

Research Response 1) Various aspects of LICM provide a framework for evaluating leadership in change management. Kurt Lewin's classical approach, leader-member exchange, intentional change management, and appreciative inquiry address the foundation of the classical framework. This unique leader strategic approach supports successful cloud adoption. LICM was a change management strategy for facilitating cloud adoption in organizations. The results are captured in Tables 1 through 11. The five emergent themes are depicted in Table 11 with detailed findings in associated sub-tables 11-1 through 11-5.

The four elements of the LICM model provide the theoretical framework. Participant strategies align with LICM and rate canonically in five steps according to the rubric criteria for measuring the strategies as identified in Table 1.

Table 1. Canonical Action Research Methodology

Steps	Tasks	Score (1-5)
Problem diagnosis	Change management strategies	
Action planning for adoption according to LICM	Lewin, LMX, ICT/AI approaches and integration	
Intervention	Resources to achieve implementation and actions taken	

Evaluation and metrics	Interview opinions and recommendations (paraphrased); assimilate success and failures
Specification of learning outcomes	Corporate university training and agile project management

Note. An example of a weighted average analysis is the total number of elements divided by the instances as in the example of 3, 1,1,2,4 = 11/5 = 2.2

A rubric assessment developed to determine the level of strategic accomplishment and outcomes. The score assigned to each participant applied to the level of an effective strategic outcome in the cloud service adoption effort for the organization. The weighted average provided results for each of the eight participants. This assessment was limited to the input from the participant's perception of accomplishment as the coding element source in rating strategic success.

Five ratings provide the levels of success. The criteria for highly effective demanded an achievement of the optimal goal and successful result in cloud adoption as identified by an ideal outcome. The criteria for *satisfactorily effective* was achieving the goal in an effective manner with challenges overcome yet not completely remedied. The criteria for *minimally successful* was achieving the goal without remediating all of the challenges.

The criteria for achieving *partially successful* required task progress on the goal and milestone in addition to identifying the challenges. The criteria of *unsuccessful* indicated that an uncompleted cloud adoption and strategy occurred. Also, an

unsuccessful rating demonstrates that the challenges for cloud adoption not completely identified or resolved. Table 2 provides the ratings for the participant LICM strategies.

Table 2. LICM Interview Strategies

Participant	P1	P2	P3	P4	P5	P6	P7	P8
Leadership	2	2	1	1	1	3	2	2
Change	1	1	2	2	1	1	1	2
Strategy	2	2	1	2	3	2	2	2
Decision-making	3	3	2	3	1	2	3	3
Corporate training	2	3	2	3	2	3	4	3
Weighted average	2	2.2	1.6	2.2	1.6	2.2	2.4	2.4

Participant ratings of strategies:
1 – Highly successful
2 – Satisfactorily successful
3 – Minimally successful
4 – Partially successful
5 – Not successful

The rubric participant ratings provide five possible participant ratings on leader strategic approaches. The LICM rating for each participant ranged from a possible qualitative rating of either highly successful, satisfactorily successful, minimally successful, partially successful, or not successful. The qualifiers for each rating from one to five, as indicated in the participant ratings, support leader performance in achieving a successful strategic outcome.

The respondents rated above 2.5 for the weighted average and the range of weighted average was 1.6 to 2.4 for an average of 2.075 for total respondents. The

findings provided ratings for selected leaders. Each participant rated as either highly successful or satisfactorily successful. This rating achieved by each participant was above the average rating.

The average rating included a rating of minimally successful. If these ratings earn an academic grade ranging from letter grades of “A” to “E,” the participants rated an average total score of success as a “B+” or above. Table 3 captured the steps, tasks, and weighted scoring. Table 3 contains the protocol for the findings.

Table 3. Steps, Tasks, and Weighted Scoring

Steps	Tasks	Score (1-5)
Problem diagnosis	Change management tactics	
Action planning for adoption according to LICM	Lewin, LMX, ICT/AI relationships	
Intervention	Resources to implementation and actions taken	
Evaluation and metrics	Interview opinions and recommendations; assimilate success and failures	
Specification of learning outcomes	Corporate university training	

Note. An example of weighted average analysis demonstrates 3, 1,1,2,4 = 11/5 = 2.2.

The rating rubric in Table 3 was assessed based on probable impacts, attempts, and participant opinion. A limitation of the study was the subjectivity of opinions from the leaders on their performance. The experience of the researcher as a university professor designing courses and developing the associated rubric for over a decade provided validity to the rubric design.

The semi-structured interviews resulted in findings from transcriptions and subsequent member checking to validate the interviews from each of the eight respondents. The case study also includes NIST and international standards, regulatory requirements, and change decision-making management theory. Appendix A, Figure 6 provides a graph of the weighted average totals per participant as aligned with LICM. Appendix C, Attachments 1-8 include the summaries of the participant responses, date of the interview, member check validation, and remediation date. Table 4 provides the averages for the ratings of each participant.

Table 4. Weighted Average Totals

(P1)	(P2)	(P3)	(P4)	(P5)	(P6)	(P7)	(P8)
2	2.2	1.6	2.2	1.6	2.2	2.4	2.4

The selection of the participants required a process of discernment based on an interest form. Optimal respondent selection occurred from the analysis of the responses to the five questions, demographics, and roles in the organization as applied to cloud adoption. The limitations of the study include the unintentional exclusion of participants with equal or greater expertise. The representative participants provided data saturation for participant perspectives of organization types.

The D.C. metropolitan area was the venue for selecting interviewees to represent organization type without regard to the home of residence. Purposeful selection criteria included leadership status in the organization and success in cloud adoption. After screening the respondents for participation based upon successful cloud service adoption, twenty participants comprised the selected pool of resources. From the selected participants, the optimal respondents chosen resulted in six organizational selectees.

Two additional selected participants augmented the hybrid organizational types. Each participant matched the criteria for selection based on answering affirmatively to the screening questions. Each of the participants led an effort in the integration of a cloud service for their respective organization. Table 5 provided the demographics by category and role of the participants.

Table 5. Participant Demographics and Role

	Category	Role
(P1)	Government	Agency CIO
(P2)	Industry	Industry CEO
(P3)	military	Officer LTC Project Manager
(P4)	Private	Private Industry CEO/CIO
(P5)	Non-profit	Major General CDR

(P6)	Academic	Educator and FedRAMP[SM] official, Agency CTO
(P7)	Non-profit supplement	Director and Member of Advisory Board for Cloud System Integration
(P8)	Non-profit supplement	College Professor of Cloud Technologies and System Integration

The variety of service and deployment models varied among respondents. There are three services which are infrastructure as a service (IaaS), software as a service (SaaS), and platform as a service (PaaS) as described by NIST (Erl, 2013). The deployment models included public, private, community, and hybrid cloud (Erl, 2013). The initiative for Cloud First was not the primary motivator to adopt the cloud for any of the participants.

The Cloud First requirement provided awareness for all organizations to move to the cloud (Van Roekel, 2012). A 25-point implementation plan designated by the second Federal CIO became the protocol for government agencies (Van Roekel, 2012). Although the specific mandate was not the reason to move to the cloud, the technology was introduced by the first Federal CIO as the change in business models that impacted all organizations (Van Roekel, 2012).

Cloud service technology evolved as a perceived solution to the costly and unmanageable growth of technology solutions, hardware and software expenditures with associated *big data* concerns for storage remedies (Alali & Yeh, 2012). In establishing a Cloud First initiative, the Federal CIO intended to provide a shift to virtualized technologies and cloud services to reduce the environmental footprint and create consolidated approaches for managing information. Appendix C, Attachments 1-8 includes the summaries of the participant responses, date of the interview, member check validation, and remediation date.

Table 6 provides the cloud service, model, and Cloud First influence. The eight participants asserted unanimously that the mandate to move to the cloud was not the primary reason for moving to the cloud. This was an instrumental finding. The finding demonstrated that the interviewees did not choose cloud services as a direct result of the Cloud First mandate.

Table 6. Service, Model, and Cloud First influence

	Service	Model	Cloud First
(P1)	PaaS	Private and Hybrid	Not primary reason
(P2)	SaaS	Hybrid	Not required in country
(P3)	IaaS, PaaS, & SaaS	Private and Public	No
(P4)	IaaS	Public	No
(P5)	IaaS, PaaS, & SaaS	Private and Public	Pre-dated Cloud First
(P6)	IaaS & PaaS	Hybrid	Not primary guidance
(P7)	IaaS, PaaS, & SaaS	Public	Not required
(P8)	SaaS	Public	Not a factor

LICM behavioral indicators identified current approaches in cloud adoption strategies. This identification of LICM by participant initiatives included responses to the

questions posed in the interview. The predominant characteristic of each element of LICM provided identifiable traits of change management. LICM included Lewin's change management, leader-member exchange, intentional change, and appreciative inquiry. Appendix C, Attachments 1-8 included the summaries of the participant responses, date of the interview, member check validation, and remediation date. Table 7 provides the analysis of LICM.

Table 7. LICM Interview Findings

(P1)	Leadership	Lewin's change management	Ensuring an understanding of policies by leaders and understanding the importance of the follower.	Involve the stakeholders and team members plus attempt to obtain consensus in change management practices.
(P2)	Facilitator of change	Lewin's change management	Led the team in the adoption of cloud computing services.	Lack of change management required implementation. Industry found it difficult to facilitate the change management.
(P3)	Leadership	Leader-member exchange and Appreciative Inquiry	Implementation of the cloud services for everyday use for the military resulted in operational goals and management of storage capacity.	Centralized approaches occur, and leaders work for strategic initiatives in meeting the objective. Ensure the problem is clear and identifiable. Leverage early adopters of the cloud for change management to achieve cloud adoption. Brief the group and ensure

				support. Provide thorough cooperation among the team members. A game plan is critical to identify and determine the best interaction among operational members. Convey the outcomes to staff leaders.
(P4)	Leadership	Intentional change	Led the implementation effort and conferred with stakeholders and all applicable organizational partners.	Change management practices applied for the small team.
(P5)	Leadership	Leader-member exchange and Appreciative inquiry	Led the effort in implementing cloud technologies that assisted the efforts of our mission.	There was a diverse staff that worked well together by mutual respect in meeting the mission. Transparency and inclusiveness provide effective change management. Creating a vision is also an essential leader change management practice.
(P6)	Leadership and Facilitator	Intentional change	There have been quite a bit of discussion on cloud adoption and planning continues. I am spearheading this effort within the	There was a demonstrated need for change management practices. Everyone seemed to be making decisions without leadership. I brought leadership to the effort and am gathering

			organization.	information on the current status. Purchases of cloud and associated requirements are being reviewed and directed. The practices are being applied to engage leaders.
(P7)	Leadership and Facilitator	Appreciative inquiry	I am a leader and integrator at the University.	It is my responsibility to coordinate efforts with the appropriate teams and organizational divisions within the university.
(P8)	Leadership and Innovator	LICM	I was the Director of the 360 cloud effort for transitioning veterans.	Dedication and inspiring persistence by the team in the effort to proceed with the initiative resulted in success.

Organizational improvements occurred as a result of the data center consolidation initiatives and the adoption of cloud services. This improvement culminated in the reduction of hardware and software requirements. Table 8 includes the findings of pertinent positive social change for the organization. Appendix C, Attachments 1-8 include the summaries of the participant responses, date of the interview, member check validation, and remediation date. Table 8 includes the findings of relevant positive social change. Positive change was an outcome based on the responsible leadership in data center consolidation, reduced hardware expenditures, and reduction of the environment footprint.

Table 8. Corporate Positive Social Change

(P1)	Social responsibility includes each agency being responsible for reporting and being held accountable for expenditures	Corporate social responsibility included data center consolidation saving hardware and software expenditures.	In *big data* implementation of the intelligence information was successfully managed	DoD protects the nation against all threats and enemies. Cloud services facilitate the capability for corporate social change.
(P2)	Closing data centers and consolidating these data centers contributed to corporate social change although financial drivers are a primary consideration. Policies are in place for the protection of data, and the onsite cloud preferred for managing the information contributing to positive social change.	Limited savings occurred because of the challenges in change management, planning, project creation, and the massive effort in meeting expectations for cloud implementation.	*Big data* was an important consideration in the management of information for agencies such as the Geospatial Agency on the amount of the data that required effective management, for example. Data in the field required management and has a new set of problems. Gathering data and managing the data in a cloud environment for evidence, video, and other media has challenges including building networks.	Positive cultural change was occurring slowly in making the management of information easier and increasing efficiency with cloud adoption
(P3)	The procurement organization	Data center consolidation was successful, and	The problem demonstrates that *big data* needs to	The military was an effective and

	was a steward for corporate social responsibility which balances capability with the cost for the military. A data center oversees required renovation and in moving forward, the design needed to be cost effective and requirements needed to be defined, for example. The project needs requirements because, without these, the project would be canceled in our corporate social university. Sometimes the right thing to do was not to pursue the expenditure to ensure social responsibility.	corporate social responsibility maintained for many of our efforts in cloud adoption.	management. This problem resolution included a cloud service in our organization. A global satellite data network created a centralized effort for supply management with database management, for example. This undertaking was successful, for example, in managing *big data*.	responsible organization for encouraging positive social change in cloud adoption services.
(P4)	Amazon and Google provide a standard for optimizing the cloud service and charge for the time used.	Social responsibility included data center consolidation and this resulted in a favorable	Storage for *big data* was available including the provision of back up on the drives for the virtual	Minimize expenditures in information technology result in a positive social change by

	Corporate social responsibility applied to the reduction of expenditures while keeping the costs at a per user rate. Ensuring that the client does not have to be concerned with the change of provider or the provider no longer being available was a challenge.	outcome.	servers, data center, and replication of information for the base files. Google data storage is ideal for *big data*.	taking advantage of a service that is being provided by others. This change also creates a positive expenditure structure for clients using the technology.
(P5)	Corporate social responsibility is the goal of meeting the mission efficiently using the technology and reducing the hardware and software was a byproduct benefit. The cloud was transparent which is an excellent corporate social benefit. Reduction of costs and being a socially responsible	Data center concerns indicate a smaller concern as compared to the attention given to resource availability via various internet locations. This consolidation was more an effort of virtualization and positive social change responsibility became imperative and a result of the effort.	Financial system manageability improvement stems from availability with the cloud service capability. Legacy systems changed and new standards for disaster recovery adopted. This system enhanced the management of big data. The cloud service provided a means of managing aerial imaging thus managing big data.	The cloud service provided positive social change by facilitating a means of rapid reporting to the White House and the military to determine the extent of remediation for a catastrophic event. The on-demand release of the information to appropriate personnel in real time was essential and capable thus

	organization was the goal.			contributing to positive social change.
(P6)	Social responsibility is an effort and byproduct of the cloud service. Positive social change in any excellent benefit for cloud technology implementation and makes work more efficient and reduces costs and use of resources.	The data center consolidation effort reduced the environmental footprint by reducing the cost and expenditures occurring with network growth. This involved being good steward with the funding and being responsible with government funding and our environment by using more green technologies.	There are tremendous amounts of data to be managed. Cloud services may be a means of managing the data, however; the solution is not apparent. Big data is an issue that is being worked out with various vendors to determine management strategies.	For a long term solution, cloud services do contribute to the reduction of the environmental footprint. This success results in a positive social change for stewards of organizations.
(P7)	In academics, the ADA requirements for access to all students regardless of their disabilities was provided. The goal to achieve superior excellence protocols indicate importance for the university to strive for and achieve in social	The data consolidation effort was necessary to save funds and spend resources on a more effective technology that reduced data center consumption. The concentration and focus remained on the needs of the organization at the university. Saving funds was important	The cloud provided resources for managing the voluminous data within the university and in allocating storage capabilities.	The university is functioning more efficiently and responsibilities, of course, improved delivery. This delivery indicates the achievement of positive social change.

	responsibility initiatives.	although this did not become the only factor in the decision to use a light technology such as the cloud.		
(P8)	Implementing cloud as a solution for operations and training is a corporate social responsibility initiative. This effort resulted in the reduction of expenditures. Virtual classes included delivery to the veterans saving expenses in hardware and software.	Data centers included development for operations and optimal use of equipment reduced extended data center consumption thus increasing efficiency.	Managing large amounts of data did not impede the functions within the organization. The cloud service was optimal for providing a solution for managing operations. Asynchronous communication was effective, and data was manageable. Communication was remote.	The cloud service was efficient for operations. The cloud service also provided positive social change. The organization trained the veteran clients in cloud technologies for supporting organizations that donated funds for the training.

Corporate university training of representative leaders requires strategic leadership agile project management cloud integration curriculum. The curriculum training expounds upon the new knowledge acquired by strategic leadership in the adoption of cloud technologies. The table included responses on the necessity of corporate university training. Appendix C, Attachments 1-8 includes summaries of the participant responses, date of the interview, member check validation, and remediation date. Table 9 provides findings for corporate university leader training.

Table 9. Corporate University Training for Leaders

	Training		Corporate University	Rating
(P1)	It was essential to train leaders.	***Y/Y***	Define skills and train in corporate university.	**1**
(P2)	Require mandatory training.	***Y/Y***	Train in a corporate university.	1
(P3)	Understand market dynamic and provide leader guidance.	***Y/Y***	Train in a corporate university.	1
(P4)	Train leaders.	***Y/Y***	Train in a corporate university was a good training environment.	1
(P5)	Disruptive change management required leader training.	***Y/Y***	Train in a corporate university was an ideal training environment.	1
(P6)	Leader training was a priority with training for leader stakeholders.	***Y/Y***	The level of leadership was the identifying factor in deciding on using the corporate university.	2.2
(P7)	Leader training was necessary for success.	***Y/Y***	Corporate university setting was appropriate for strategy instruction in cloud adoption for leaders.	1
(P8)	Training for leaders was important.	***Y/Y***	Leaders need to be trained to understand requirements in a corporate university.	1

Standardization of an approach among organizations to adopt cloud services was an ongoing challenge for leaders since the initiative of cloud service adoption. Challenges continue since the first federal CIO introduced the Cloud First mandate (Van Roekel, 2012). The difficulty in strategic initiatives remains a challenge, however; future studies in agile project management and corporate university training of leaders offers options in meeting successful efforts with a standardized approach in cloud adoption.

Introducing leadership strategies that include social responsibility initiatives in cloud adoption are presentable in the venue of a corporate university (Huysmans et al., 2015). Agile project management provides continuance of task completion regardless of milestone time frames (Chung & Yu-Tang, 2015). Appendix C, Attachments 1-8 provides summaries of the participant responses, date of the interview, member check validation, and remediation date. Table 10 provides the standardized approaches extrapolated from the participants and paraphrased.

Table 10. A Standardized Approach for Cloud Adoption by Leaders

	Standardization
(P1)	An approach to standardization was needed.
(P2)	Ensure accuracy of enterprise architecture in standardization.
(P3)	Identify metrics, understand clientele, and ensure communication for goal in standardization.
(P4)	Consider vulnerabilities and threat and provide information on the point of failure.
(P5)	Standardize cloud systems with adjustments based on the framework. Use a checklist.
(P6)	Learn implications of technology as a preventive measure in

standardization.

(P7) Leader change management strategies require standardization.

(P8) Cloud drives change and understanding cloud was important for strategy in standardization.

Note. The interview responses are paraphrased based on the research question. In the analysis, the main theme of the response was captured and included as a summarized finding. The intent of the interview was to capture the leader's strategy for cloud adoption, alignment with LICM theory, and concepts for prospective success in delivering training on the findings extrapolated with CASDAQ software. Tables 1-10 provide the paraphrased response from each participant as a response to the interview questions which align with the research questions. Table 11 provides further analytical interpretation based upon the responses and five emergent themes identified in the findings. Each table and sub-table includes an introductory paragraph. Appendix C, Attachment 1-8 includes the interview summaries plus member checking verification of the content with paraphrasing provided to cross-reference in the findings.

As a result of CASDAQ analysis and the resultant coding of categories, nodes, and emergent themes, the analysis of the case study identified new knowledge for cloud adoption initiatives. The analysis of the themes references the synergy with the theoretical framework of LICM and the conceptual framework for the development of an approach to depicting the forecasted approach in model leader training in a corporate university. The recommendations include the strategic approach in this research study.

Paraphrased responses from the interviews include a synthesis of the findings for Table 11 and associated sub-tables. Table 11 identification of five themes and associated topic. Detailed analysis for each of the five themes by sub-table provides the findings in sub-tables 11.1 through 11.5. For example, a statement or comment from a participant related to the theme was indicated for emphasis within the analysis and the associated

paraphrase was cross-referenced in the findings. Appendix C, Attachments 1-8 provides summaries of the participant responses, date of the interview, member check validation, and remediation date.

Table 11 includes the emergent themes identified in the CASDAQ analysis. The five themes are listed by identifying theme name and associated finding. The detail for each theme resides in sub-tables 11-1 through 11-5. Each of the five themes aligns with a sub-table of direct interview paraphrased input. These themes incorporate the research questions, answer the research questions, and identify the findings from the research. LICM is a resource in strategic approaches for cloud adoption success.

Table 11. Qualitative Analysis of Five Themes

Theme	Name	Issue	Sub-table
Emergent Theme 1	Problem Diagnosis	Cloud Adoption and Change Management	11.1 Problem diagnosis. Change Management
Emergent Theme 2	Action Planning for Adoption According to LICM	Lewin CM, LMX, ICT/AI relationships	11.2 LICM and Corporate Social Responsibility
Emergent Theme 3	Motivation	Resources for Implementation and Actions Taken	11.3 Motivation for Cloud Adoption and Management of Big Data
Emergent Theme 4	Evaluation and Metrics	Interview Opinions and Recommendations; Assimilate Success and Failures	11.4 Metrics, Policies, Procedures, and Guidance for Cloud Adoption
Emergent Theme 5	Specification of Learning Outcomes	Corporate University Training	11.5 Leader training and agile project management in a corporate university

Emergent Theme 1: Problem Diagnosis (Cloud Adoption and Change Management)

Adopting cloud technologies to meet the cloud initiative of Cloud First was a requirement for agencies that affects all organizations (Van Roekel, 2012). Cloud First was not the main reason the participants moved to the cloud (Van Roekel, 2012). The initiative sparked a paradigm shift in technological innovations and business management. The eight participants initiated a cloud service for various reasons. The participant for the government (P1) agreed that the Cloud First mandate initiative which targeted the government was not the primary reason to move to the cloud (Appendix C, Attachment 1, 2015).

Unanimous findings among all eight recipients concurred that the Cloud First mandate was not the primary reasons to move to the cloud. A paraphrased response from (P1) indicated that the decision on moving to the cloud required necessity and whether it was beneficial primarily (Appendix C, Attachment 1, 2015). (P2) alluded to the need to remain cautious and tread slowly based on security assurances (Appendix C, Attachment 2, 2015).

Cloud First was a springboard to determining security and privacy assurances in the cloud. The Cloud Security Alliance (CSA) was formed to establish communications to further mutual efforts in protecting systems in a cloud environment. The Cloud Control Matrix located at URL http://www.cloudsecurityalliance.org. was produced by the Cloud Security Alliance and alluded to as an industry artifact in this research study; not a scholarly reference as indicated in Appendix D.

The artifact contents are a copyright protected spreadsheet on security controls and change control management available on the CSA website for use by cloud integrators worldwide. The United States and Canada abide by the NIST guidance developed for cloud security and privacy. The CSA is a certification authority for training similar to the International Information Systems Security Control Consortium (ISC^2) and the Information Systems Audit and Control Association **(**ISACA) organizations as certifying bodies in security and privacy for systems including cloud education.

CSA growth has expanded to a wide global international effort of members collaborating on cloud security and privacy. Professionals with certifications in cloud technologies from CSA, ISC^2, and ISACA are in demand for government, industry, military, private, non-profit, and academic organizations (Erl, 2013). The reference to the three certification bodies in this analysis identifies the progression from the Cloud First mandate to consider cloud service implementation whenever possible; to the existing mandate established by the government and industry for certifying professionals in cloud technologies as a requirement for implementing cloud services.

(P1) government participant and (P2) industry participant include leaders in cloud efforts for establishing increased communications and regulatory requirements for professionals in cloud implementation services (Appendix C, Attachment 1 & 2, 2015). (P3) Military participant discussed the need for a global move for the organization with strict adherence to security and privacy whereas (P4) sought convenience and reduced cost with good performance for private organizations. The (P5) participant was a hybrid

non-profit military with high initiatives in positive social change benefits without regard to the mandate of Cloud First (Appendix C, Attachment 3-5, 2015).

(P5) also stated the effort to move to the cloud pre-dated Cloud First. (P6) participated as a leader in the cloud before the Cloud First mandate. The next three participants include (P6), a hybrid academic government organization; and, (P7) who moved to cloud services for servicing students in universities in a more efficient manner. (P8)'s intent to facilitate the move to the cloud relied on the need for the non-profit organization to improve efficiency. All of the respondents had a consensus that the move to the cloud was not directly attribute to the Cloud First mandate (Appendix C, Attachment 5-8).

This mandate was a technology innovation that required implementation whenever possible. The 25-point implementation by the second Federal CIO did not occur until one year after Cloud First was introduced (Van Roekel, 2012). Guidance has been continual, however; a standardized approach across organizations remains elusive. Adopting cloud technologies to remain competitive as an organization or to meet compliance include options for selecting the technology. The implication of change management was a daunting task requiring LICM.

Table 11.1 Problem Diagnosis

	Change Management
(P1)	Several stakeholders provided support for change management by spearheading the adoption of cloud services. This decision included a 4-star General and the Secretary of Defense.
(P2)	Creating collaborative opportunities to encourage communication was the main leader initiated change management approach.

(P3) Effective communication is the most important tactic and in understanding the need for the stakeholders. Explaining strategic goals to stakeholders that mirror their request and providing the outcome is the best case scenario.

(P4) Decision making was important in the change management approach. Following the replication, the effort was also important to ensure proper functionality. Making this seamless to the stakeholder customer was effective. It was imperative to ensure the functionality occurred properly, correct settings applied, successful regression testing transpired, and available optimal buy-in choices.

(P5) An action plan is essential to meet change management goals. Planning is an effective mechanism for change management. Incorporated strategies include a means of completing the plans. This planning effort and skill set is an action plan chart which is an available artifact.

(P6) The most effective approach leading a change management effort in uncovering the needs of the organization to be redesigned with an architecture that will include cloud and identify the requirements, plan for the outcome, and set aside funding measures for costs. The jobs needed for the effort need to be identified. Planning is also very important in establishing the groundwork by identifying effective strategic management.

(P7) The cooperative effort with information technology divisions in exchanging information provided the knowledge needed to develop the architecture. Change management became a technical undertaking.

(P8) Developing a new business model for the cloud effort to deliver services required training on cloud technology. Interested organizations provided funding to receive trained veterans from the program. As a leader, it is important to place yourself in the shoes of the other person. Empathy is very important.

Emergent Theme 2: Action Planning for Adoption According to LICM (Lewin, LMX, ICT/AI Relationships)

Leader initiated change management (LICM) approaches include successful strategies to adopt cloud services. Corporate social responsibility was a consideration in implementing a cloud technology and resulted in a benefit with positive social change. The international standard for corporate social responsibility was not the influential factor, however; the guidance was a growing trend and approach for universal organizations. The ISO 26000 standard evolved in 2010. In recent years, ISO 26000 developed further to become part of organizational compliance criteria (Hahn, 2012).

The standard does not align with other ISO's that provide a certification for the organization or individual. Abiding by the criteria defined in ISO 26000 demonstrates good business practices in protecting the environment and supporting sustainability. An organization or individual can abide by the principles but cannot assert the award of certification for ISO 26000 compliance. ISO 26000 was not designed to award certification for compliance and remains a non-certifiable standard. ISO 26000 provisions include due diligence, environmental sustainability, and adherence to positive social change.

An action plan for adoption requires LICM, corporate social responsibility and leader training on strategic implementation based on a standardized agile project management plan (Rasnacis & Berzisa, 2015). This action plan is presented as a baseline in this study and recommended for future research. Corporate social responsibility for

moving to the cloud was a priority for establishing reasonable costs, efficiency in managing information, and support of a sustainable environment (Simionescu, 2015).

Table 11.2 LICM and Corporate Social Responsibility

(P1)	The most important choice in cloud adoption is whether it was cost effective and security based. DoD is large, and it was a consideration on which service to use that would be the most beneficial. DoD was involved with FedRAMP[SM] as a governing board. The entire government considered the evaluation of this effort. The business value was the main driver. Reducing data centers and becoming the state of the art including environmental footprint reduction contributed to corporate social responsibility. It was a byproduct of the effort to reduce the environmental footprint. Keeping the cloud provider competitive is important to reduce cost and to ensure that loss of the cloud provider does not occur arbitrarily.
(P2)	An incentive is needed to adopt a cloud service. The Canadian government risks adverse and cautious in adoption. Social responsibility is a byproduct of cloud adoption. Reducing hardware and software is an incentive but is not the main driver.
(P3)	Business processing centers initiated the cloud effort before Cloud First. This global effort occurred for the military at various data centers. Social responsibility is part of the effort in protecting the environment. The operational advantage was extremely important. Reducing the cost is part of the effort although it is not the main consideration. As a program manager, a trade-off occurs to meet the need and balance of the cost.
(P4)	Cloud services provide a reduction in costs and improve performance as a beta test from Amazon web services. The cost from Amazon was reasonable. Server removal from the hosting platform using the infrastructure established efficient implementation. In adopting the cloud, other services provided by Amazon resulted in environmental footprint reduction to support corporate social responsibility.
(P5)	Our efforts in adopting cloud services pre-dated Cloud First. Corporate social responsibility is of paramount importance in adopting technology. As a leader in an organization, identifying the importance of relationships and meeting the goals of saving lives results in achieving positive social change. The diversity of hired personnel and

creating an environment of acceptance also contribute to a positive workplace.

(P6) The introduction of cloud technologies in the organization transpired before Cloud First. It is important to be good stewards with social responsibility in implementing cloud technologies. Although environmental considerations are a concern, the focus was on functionality and not contributing to the detriment of the environment.

(P7) The adoption of cloud services did not occur because of Cloud First. Interest in savings costs plus reducing the purchase of hardware influenced the decisions.

(P8) Cloud First was not a factor. The concern was saving money as a non-profit and providing an affordable service model.

Emergent Theme 3: Motivation (Resources for Implementation and Actions Taken)

(P1) was involved in introducing risk management for cloud service integration for classified and unclassified information as the CIO of DoD (Appendix C, Attachment 1, 2015). This major undertaking was an effort to identify a cost effective and beneficial cloud implementation effort to serve the constituents by effective and responsible social change according to (P1) as indicated in Appendix C, Attachment 1. The business value was the main driver as identified by (P1) provided in Appendix C, Attachment 1. Cloud security initiatives transpired in Canada and the United States early in the effort to move to a cloud and (P2) advises that security and privacy are major concerns in moving to a cloud (Appendix C, Attachment 2, 2015).

(P3) identified the need for a cloud service to facilitate the storage of information for the military and to protect the nation and utilize a strategic effort (Appendix C, Attachment 3, 2015). (P3) stated that the cloud initiative was a global effort with a

requirement to practice data center consolidation to save on expenditures as corporate social responsibility (Appendix C, Attachment 3, 2015). Economics include a consideration as relayed by (P3) however; the responsible use of the cloud overrode the savings effort and sustainable development was a goal (Appendix C, Attachment 3, 2015).

The reduction of costs and improvement of performance for customers was the main incentive for (P4) as indicated in Appendix C, Attachment 4. Amazon web services provided an adoption test model with low costs, and the cloud service met the need to provide excellent service in a secure manner as decided by (P4) in the interview summary of Appendix C, Attachment 4. The increase in the benefits of scalability provided a benefit for the cloud implementation according to (P4) as acknowledged in Appendix C, Attachment 4.

(P5) described the need for various capabilities of the cloud to facilitate the quality of information required for the mission according to aerial reconnaissance. Maintaining routine information and storage also became necessary with cloud capabilities and the effort for responsible governance aligned with cloud adoption as stated by (P5) according to the summary in Appendix C, Attachment 5. Cloud provided services for leaders to increase efficiency and receive clearer imagery in a fastidious manner as identified by (P5) in Appendix C, Attachment 5.

The interviewee (P6), holds the position of CTO for a government agency with considerable experience in the FedRAMP^{SM} initiative. The initiative requires the identification and establishment of risk assessment procedures and criteria for cloud

systems (Appendix C, Attachment 6, 2015). The interviewee (P6), participates on a regular basis at various cloud venues for intelligence organizations, government forums and conferences, military venues, private and public committees, and various advisement panels on cloud implementation (Appendix C, Attachment 6, 2015).

Interviewee (P6) augmented the pool of participants for purposive selection. Each participant contributed to the identification and description of various strategic initiatives in cloud adoption (Appendix C, Attachment 6, 2015). As an educator in cloud adoption, (P6) has been identified as a subject matter expert on cloud practices and cloud knowledge management (Appendix C, Attachment 6, 2015). (P6)'s motivation aligned with the integration of various deployment models such as IaaS and PaaS approaches including hybrid service architecture for data center consolidation which aligns with corporate social responsibility (Appendix C, Attachment 6, 2015).

(P7) serves as a University professor and integrator of cloud services. (P7) also, volunteers on cloud working groups with NIST to contribute to the development of cloud standards (Appendix C, Attachment 7, 2015). The researcher participated in the NIST working group on cloud standards acceleration. The working group collaboratively developed eight cloud standards in an expeditious manner. (P7) contributed to various working groups for this effort with NIST for several of the cloud standards for the standards acceleration effort (Appendix C, Attachment 7, 2015).

The effort for the university was to be current, relevant, and productive to assist the students according to (P7) in the summary of Appendix C, Attachment 7. (P7) identified meeting an initiative for corporate social responsibility (Appendix C,

Attachment 7, 2015). (P8) adopted the cloud to provide services for veterans at a lowered cost (Appendix C, Attachment 8, 2015). Providing an affordable and secure cloud model and reduce the environmental footprint of hardware expenditures was a motivator for (P8) in positive social change (Appendix C, Attachment 8, 2015).

Table 11.3 Motivation for Cloud Adoption and Management of Big Data

(P1)	Providing services for the agencies is the highest concern. Consolidation and security impact provides more than the reference to *big data.* The requirements for regulatory authority must be followed and are necessary. Agencies have autonomy for setting up information technology. The type of technology was not required to follow a specific pattern. Creating a DoD cloud and associated data centers including management of *big data* is a recent endeavor.
(P2)	Compliance requirements did not become a concern at the time that this cloud initiative commenced.
(P3)	Competitiveness in the cloud met with a need to protect the nation and utilize a strategic initiative. Economics did play a role to some extent. Cyber threats include important considerations and cost was not the main concern. Protecting the nation and keeping the nation safe was the motivation.
(P4)	The web services and Google application engine increased capability and scalability with functionality that increased competitive advantage. This advantage provided greater customer service.
(P5)	Competitive and compliance requirements indicate the nature of the organization to serve the public. The organization was a volunteer to assist in search and rescue, and the focus of cloud technologies was to obtain efficient practices. The technology assisted in being able to provide services in a leader-efficient methodology. Aerial imagery, for example, is enhanced with cloud technologies and is a distinct advantage. The cloud service provided a means of managing aerial imaging thus managing *big data*.
(P6)	Competitive advantage was not a rationale although compliance

did become a concern as criteria added from the federal government provided security of the cloud.

(P7) The focus was not on compliance as much as it was on competitiveness. To compete as a university, we needed to current, relevant, and competitive to serve the students.

(P8) Cloud was adopted to provide services at a lowered cost that was not competitive or because of compliance criteria.

Emergent Theme 4: Evaluation and Metrics (Interview Opinions and Recommendations; Assimilate Success and Failures)

Metrics served as a guide in decision-making for technology adoption through change management. Current information assurance policies, procedures, and guidance suffice in addressing threats and vulnerabilities in ensuring secure cloud computing adoption overall however; certain areas required further guidance such as change management (Caytiles, et al., 2012).

Challenges in cloud service adoption impede the success of implementation unless LICM aligns with strategic initiatives according to (P1) in the summary of Appendix C, Attachment 1. Challenges occur in gaining cooperation among peers and subordinates in the effort to adopt cloud services and in managing *big data*. Change management practices critical in meeting challenges of cooperation among team members require adherence to LICM to establish a leader and subordinate relationship that is amenable, productive, and goal-centered.

(P1) identified the loss of control as a major challenge in cloud adoption (Appendix C, Attachment 1, 2015). (P2) asserted the incidence of cultural resistance as

the main issue especially when supporting the government (Appendix C, Attachment 2, 2015). Many organizations believe jobs are a risk because of the cloud according to the participant (P2) in summarization of Appendix C, Attachment 2.

As a leader, identifying job change is necessary as stated by (P2) in Appendix C, Attachment 2. (P3) inferred that subordinates did not pose a challenging issue (Appendix C, Attachment 3, 2015). Explaining the purpose, mission, and capability of the effort to leadership was a challenge as (P3) provided in the interview (Appendix C, Attachment 3, 2015). As a procurement organization, description of the steps was necessary; and, according to (P3); providing the problems that are possible to peers provides increased trust (Appendix C, Attachment 3, 2015).

(P4) purports that a lack of understanding among peers and subordinates inhibits the effort to support cloud service implementation (Appendix C, Attachment 4, 2015). (P5) assertions include demonstrating to subordinates that they are leaders and encouraging the leadership in others works best for gaining cooperation and establishing goal accomplishment (Appendix C, Attachment 5, 2015). Scholarships, for example, established an incentive for subordinates in (P5)'s organization (Appendix C, Attachment 5, 2015). (P6) described the challenge in having office personnel report on the accomplished work, the status of the effort from subordinate cooperation and productivity, and the absence of a reporting mechanism to provide updates on success (Appendix C, Attachment 6, 2015).

The researcher explored the options of LICM in the literature, and agile project management provided possible solutions for leaders of cloud adoption. Planning for the

future of the data center, requirements for future cloud efforts and identification of costs and purchases was a challenge for cloud adoption according to (P6) in Appendix C, Attachment 6). Leading change management and providing the service was a challenge identified by (P7) as provided in Appendix C, Attachment 7.

Change management was a difficult process and procedures for change management required development according to (P7) in Appendix C, Attachment 7. The absence of these procedures created a difficult challenge for the organization as relayed by (P7) in the interview (Appendix C, Attachment 7, 2015). (P8) experienced a constant need in obtaining funds for budgeting the effort (Appendix C, Attachment 8, 2015).

Donor petitions supported the organization and are a necessity as described by (P8) in Appendix C, Attachment 8. Educating volunteers on the cloud was a challenge as well as the education of peers and leadership on cloud technologies as indicated by (P8) in Appendix C, Attachment 8. The time to train was difficult to determine based on the amount of effort required for the training according to (P8) as commented in Appendix C, Attachment 8. (P8) described the learning curve issue as non-identifiable and difficult to gauge according to the interview in the summary of Appendix C, Attachment 8. The initiative to educate leaders was strongly recommended by (P8) for the corporate university in Appendix C, Attachment 8.

Table 11.4 Metrics, Policies, Procedures, and Guidance for Cloud Adoption

(P1)	Monitoring the network to remain secure requires metrics. Ensuring situational awareness for systems and continuous monitoring of systems protects assets with metrics.
(P2)	Canada uses the NIST 800-53A and NIST 800-53 rev four plus ISO 27001 and FedRAMP[SM] guidance for measuring cloud security and

privacy as a comprehensive evaluative metric. Many cloud system providers are unable to afford the cost of FedRAMP[SM] accreditation.

(P3) Metrics resulted from an identifiable problem. Costs are included but may not be the main driver, for example. Strategic initiatives must be measurable.

(P4) Scanning results are a means of testing adoption success for security. IP Address identification and whitelisting facilitated cleared addresses. Cost savings was a guide to determine whether the technology of cloud was beneficial. Effective risk management was an important measure in whether to accept, mitigate, or transfer the risk.

(P5) Financial impact and logistical reporting with scheduling that leads to a successful outcome are metric. FISMA, FITRA, NIST, and other regulatory guidance includes part of the requirements that align with guiding adoption.

(P6) Creating a road map to plan for the cloud service is the most important metric. The measurement resources required current system requirements. Common criteria followed a standard metric.

(P7) The system development life cycle and ITIL procedures plus NIST standards serve as metrics to follow in adopting cloud services.

(P8) Metrics included following the design of the cloud and identifying the needs of organizations in obtaining skilled cloud professionals. Functionality, operations, and funding included security metrics. Bandwidth was also a monitored metric due to living virtual delivery, and this needed monitoring to ensure covered costs.

Emergent Theme 5: Specification of Learning Outcomes (Corporate University Training)

Leader training was a valuable resource to facilitate the adoption of cloud service systems in a corporate university setting with agile project management (Chung & Yu-Tang, 2015). Agile project management principles align with LICM in the literature with ensuring goals are met with viable relationship building and change decommissioning of

legacy business practices (Chung & Yu-Tang, 2015). LICM practices provide the capability for standardization of cloud service adoption in organizations.

Table 11.5 Leader training and agile project management in a corporate university

(P1)	Information assurance is important. Cybersecurity is essential. It is not a singular approach or effort. It requires cooperation. Awareness is imperative. Understanding the needs of security is essential. Behavior analytics are also important in network security in identifying threats.
(P2)	There is a strong emphasis on policies and procedures to ensure addressing threats and vulnerabilities. Leaders require knowledge for applying agile tasks that included guidance.
(P3)	From a military perspective, a consolidation of a system with sensitive data required more protections from excessive visibility to unauthorized personnel. When operating a network, it is important to understand where the boundaries are to secure the cloud service. Knowledge of builds requires visibility to those who are responsible for securing the system. Maintaining less visibility to others who are not authorized is important. The military uses an effective decentralized effort.
(P4)	It is important to create firewalls, ensure the security policy creation and associated procedures that are addressed to protect the environment. Blocking IP addresses and screening these addresses is imperative. Scanning efforts indicated insufficient protections of system threat and vulnerability identification.
(P5)	Leadership is an important area to ensure that policies and procedures are sufficient. The current government regulations are an excellent guide to provide assurance. Quality assurance is extremely important, and consistency in procedures are a high priority. Specifications on meeting guided criteria. Redundancy in procedures is important to provide consistency. There is a need to be able to understand policies and procedures.
(P6)	After working with FedRAMP^{SM} for several years including assessing the vendor requirements for ensuring security for these systems, the policies and procedures are sufficient to address the threats and vulnerabilities to ensure secure cloud adoption. It is a cultural change. Addressing cultural change is necessary. The depth of the practitioners is important, and the expertise of the security professional is the most important. The industries that have prepared cloud services for use by

agencies; and, have met FedRAMP[SM] criteria, are very good at what they do! They can successfully secure these cloud systems based on the stringent criteria.

(P7) The assessment of policies and procedures is continual. The university follows procedures to secure the cloud service according to NIST standards. Participating with NIST working groups as a volunteer also provides insight for relevant or upcoming guidance for cloud services.

(P8) Policies and procedures are a necessity and will always need development. The educational model was not an issue and the cloud service provider protected the personally identifiable information (PII) for the registration data. Also, credit card information was contracted out to local vendors to protect the PII of the students. Also, an in-house training model for veterans provides future leader resources. Training leaders is a valuable resource endeavor and a training model for cloud technology proficiency is advised.

The overall research question answer demonstrates that LICM was an integrated change management approach comprised of 1) Lewin's change management (CM) model; 2) leader-member exchange (LMX); 3) intentional change theory (ICT); and, 4) appreciative inquiry (AI). The participant respondents demonstrated various levels of LICM change management practices. A resource in interpreting the analysis to develop findings from the data included CASDAQ (Bazeley & Jackson, 2013). This multiple case study included qualitative findings.

This rubric assessment determines the level of comprehensive coverage in the interviews as applied to the cloud service operational model. The development of rubric complied with stringent academic criteria established from the experience of the researcher. The researcher held the position of a higher education professor, faculty mentor, and developer of technology and cybersecurity curriculum since 2007.

The weighted average provided results for each participant. The weighted average was a canonical assessment. The success rate relied on the participant's ken according to the interview question on leading the cloud service integration effort. The weighted average numerical scheme for the qualitative assessment provided a design for added value in portraying the findings.

The interview question design provided the necessary insight in determining the answers to the research questions answered in this study. LICM was compared and analyzed with the strategies. The current policies and procedures provided by NIST and FedRAMP^{SM} also align with the research question exploration to establish an exhaustive qualitative multiple case study in cloud adoption strategies. The validation of the leadership interview content, current policies, and procedures, plus the applied strategies and approaches triangulate to respond to the questions.

As mentioned, the primary question in the study is the first research question on whether LICM provides a change management, cloud adoption capability, for organizations resulting in a positive response. An LICM approach provides a viable framework for evaluating leadership in change management based on strategic approaches successful in cloud adoption. Kurt Lewin's classical approach, leader-member exchange, intentional change management, and appreciative inquiry provide the foundation of the classical framework. This unique leader strategic approach supports successful cloud adoption. LICM was a change management strategy for facilitating cloud adoption in the organization.

Research Question 2) Are current information assurance policies and procedures sufficient to address threats and vulnerabilities for leaders to adopt cloud computing.

Research Response 2) The respondents have provided information on the success of various organizations in leveraging policies and procedures to secure cloud systems.

Research Question 3) Which metrics guided technology leaders in decision-making for technology adoption through change management.

Research Response 3) Measurement of decisions in technology adoption was reliant on existing regulatory authority. Several concerns have impeded cloud adoption including security and privacy of the data in the virtualized environment. Security metrics evolved from the working groups with NIST guide organizations (Cheng et al., 2014).

Research Question 4) Was leader training on successful cloud adoption an effective resource to facilitate the adoption of cloud service systems.

Research Response 4) The participants provided insight on the value of leader training.

Research Question 5) Which leader change management practices can provide a standardization of cloud service adoption in organizations.

Research Response 5) Standardization aligned with assessment procedures and planning for modeling an LICM for planning efforts.

An interview participant for each organization type represented the government, industry, military, private, non-profit, and academic as leaders in cloud adoption. The first four questions in the interview, classify the participant respondent category. In the findings, participant identification included (P1) for the government, (P2) for industry,

(P3) for military, (P4) for private, (P5) for hybrid non-profit, and (P6) for hybrid academic. Two additional participants added knowledge for data saturation and perspectives. (P7) provided expertise as a non-profit and (P8) supplemented for academic insight. The twenty question analysis from the eight participants extrapolated the following information for data collection.

The first two questions established the organization and category type (i.e.: category government, category industry, category military, category private, category non-profit, or category academic) plus the role each participant held in the organization. These two questions validated the level of the respondent as a high-level official in the respective organization.

The third and fourth questions ensured the respondent led an effort in integrating a cloud service in the organization. The interviewee was asked to provide the type of cloud service and cloud model. This information determined whether the level of difficulty or challenges incurred a model, deployment, or service related cloud effort. NIST defines the models as private, hybrid, community, or public cloud. The cloud services include infrastructure as a service (IaaS), software as a service (SaaS), and platform as a service (PaaS), or a combination of services.

The fifth question identifies whether the participant was influenced by the Cloud First initiative as identified by the first federal CIO, Vivek Kundra. If this as a factor, elaboration was requested to determine whether the government requirement established the initiative within the respective organization. Alternatively, the sixth question identifies the motive for adopting cloud technologies.

This question included a request on whether the participant initiated cloud technologies to remain competitive as an organization or whether it was an initiative related to compliance criteria in the organization. Clarification included whether a combination of competition and compliance comprise the rationale for moving to the cloud environment. The participant was requested to elaborate on the question to explain the move to the cloud. The seventh question discusses the relevance of corporate social responsibility in implementing a cloud technology to reduce the environmental footprint of hardware and peripheral devices.

The eighth question elicited an affirmative response from all participants. The response indicated that each participant led a team in implementing the cloud technology adoption efforts.

The ninth question posed a question on leadership requesting insight on the specific change management practices critical in meeting challenges of cooperation among team members. The tenth question cover the most difficult challenge in gaining cooperation among peers and subordinates in the effort to adopt cloud services.

The eleventh question identifies the most successful change management strategy for adopting cloud services. The twelfth question on corporate social responsibility aligns with positive social change initiatives that applied in the organization for reducing hardware and software expenditures. The participants included encouragement of other impacts of positive social change identifiable in the cloud initiative.

The thirteenth question on corporate social responsibility for data center consolidation provides further opportunity to expound on the positive social change in

more efficient management of information with cloud service adoption. The fourteenth question aligns with question twelve and thirteen for further positive social change benefits where a cloud service provides a resolution to storage issues of the management of *big data*.

The fifteenth question finalizes the summarization of positive social change in identifying the benefit of cloud service adoption overall as facilitating positive social change in the respective organization. The sixteenth question for the participants requests an opinion on whether information assurance policies and procedures are sufficient to address threats and vulnerabilities in ensuring secure cloud computing adoption.

The seventeenth question presented to the participants includes whether metrics served as a guide in the decision-making process for technology adoption through change management. The eighteenth question provided to the participants elicits a response on leader training value and the necessity for leader training targeting cloud service system education.

The nineteenth question provided an opportunity to discuss the venue of a corporate university setting for training of leaders. The question posed provides an opportunity to learn strategic approaches for the adoption of cloud service systems in a corporate university setting. The twentieth question presented initiated a discussion on whether leader change management practices provide possibilities for a standardization of cloud service adoption in organizations.

The categorizations of the questions segregated by screening, leadership, change management, strategy, decision-making, and recommendations identified similarities and

differences from the participants. The qualifier responses on the screening inquiry form identified the participants. LICM was analyzed in the findings and coded by the responses from the participants. The matrix table 2 represents the twenty question responses from the purposeful, organizational, as participants.

Organization and participant perspective depicted the findings for LICM interview strategies by the organization. An additional two perspectives added to the initial six participants for a total of eight participants. The two additions provided further insight to the original organization perspectives for ensuring data saturation.

The defined participants and categories include government (P1); industry (P2); military (P3); private (P4); non-profit para-military (P5); educational government (P6); non-profit (P7); and, academic (P8). Two respondents provided a hybrid perspective and comprised of representatives of organizational type non-profit para-military and educational government. Respondents for non-profit and academic sectors supplemented the participant selection for a total of eight participants.

Data analysis included the use of CASDAQ software to provide comparisons in identifying the themes which emerged from the interviews (Bazeley & Jackson, 2013). Five themes identified the category in results based on nodes identified in Table 11. Qualitative exploration resulted in the emergence of five themes. Code ratings applied to the strategies used in leadership for each participant based on the theoretical approach.

Table 11 findings established analysis for the five emergent themes. Each table within the theme provides a brief summary or comment from each participant. The five emergent themes identified in Table 11 incorporates the problem diagnosis (change

management tactics) and action planning for adoption. LICM classical theories comprise of Lewin, LMX, and ICT/AI relationships. Another theme was intervention and the resources to implementation and actions taken. The final two themes comprise of evaluation and metrics (interview opinions and recommendations; assimilate success and failures); and, the specification of learning outcomes (corporate university training). Table 11 in the study included an elaboration of the analysis of each theme according to the findings.

The emergent themes include a result of CASDAQ analysis of the categories and resultant nodes. Emergent themes provided problem diagnosis for change management tactics for the first theme. The second theme identified LICM action planning for adoption with Lewin's change management including the integration of LMX, and ICT/AI relationships.

The third theme included intervention with resources for implementation and appropriate action analysis. The fourth theme of evaluation and metrics established the interview opinions, recommendations, and assimilation of successes based on lesson learned challenges. The specification of learning outcomes in theme five was a segway from theme four in providing a venue for corporate training of leaders in an organizational university setting. LICM was optimal as a theoretical approach when leader's behavioral leadership tactics emulated strategies in an organizational environment.

Natural instincts and leadership experience for change management adoption have been captured in this study to facilitate the dissemination of this new knowledge.

Findings of the study from the participants, associated content, delivery advantages, and educational provisions provided an optimal venue for a corporate university. The discussion for identifying the corporate university curriculum was the subject of future research in Chapter 5.

Summary

The overarching research question for this study was; does LICM provide a cloud adoption, change management strategy for organizations. Four additional supportive research questions in the study include the following; 1) are current information assurance policies and procedures sufficient to address threats and vulnerabilities for leaders to adopt cloud computing.; 2) which metrics guided technology leaders in decision-making for technology adoption through change management.; 3) was leader training on cloud adoption a resource to facilitate the adoption of cloud service systems.; and, 4) which leader change management practices can provide a standardization of cloud service adoption in organizations. The case study research identifies new strategic approaches to cloud adoption challenges in the journey of compliance for authority to operate (Van Roekel, 2012).

LICM provided a cloud adoption, change management strategy for organizations. LICM integrated classical theoretical approaches and current practices. Content analysis was compared with representative participants from various organizational types to determine a recommended leader model for cloud adoption. Current information assurance policies and procedures suffice in addressing threats and vulnerabilities for

leaders to adopt cloud computing based on the content of FedRAMP^{SM} guidance and NIST standards for cloud security (Samani et al., 2015).

These guidance documents and standards do not provide an encompassing effort, however; the measures have aligned with laws and regulations to ensure compliance. Leader training was necessary. Leader change management practices vary, and a corporate university was a viable location for training in a standardized manner. The method of the training varied among participants.

The policies and procedures established aligned with classical and current theories for providing strategies in cloud adoption. The exploration for future research identified in the findings of this study provisioned the leader initiated change management for cloud adoption. The findings facilitated the delivery of a standardized approach.

A project management plan approach identifies tasks and milestones when implementing complex change in organizations (Ramasubbu et al., 2015). Project management also required a series of plans to support the efforts of the leaders in managing change to include a communications plan (Ramasubbu et al., 2015). A change management plan with goal tasking using an agile approach was a vehicle for guiding the delivery of a cloud service (Ramasubbu et al., 2015).

A plan that guided by the leadership strategies of LICM facilitates standardization. Leadership tasking aligns with policy goals. In analyzing the transformation of data as a transparent process, the ability for replicability provided validity in the ability to answer the research question of LICM as a strategy for cloud adoption as accomplished with change management (Krippendorff, 2013). The

implications and challenges addressed in this research study with interpretations discussed in Chapter 5 contributed to the recommendations for future research.

Prospective delivery of training for expanding the knowledge among leaders for cloud service integration provided as recommendations for future studies in Chapter 5. A leader training model of standardized approaches in cloud adoption serves as the basis for a framework for agile project management (Ghilic-Micu, Stoica, & Uscatu, 2014).

A standardized approach for cloud adoption with LICM and agile project management recommended in Chapter 5 (Ghilic-Micu et al., 2014). Decisions for cloud adoption align with existing procedures, standards, guidance and regulation to provide insight for determining the necessary architectural constraints and appropriate security and privacy controls. Recommendations for future research also includes training leaders in a corporate university setting.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of the study was to explore which change management approaches provided leaders with successful strategies for integrating cloud technologies in organizations. The insight gained with LICM strategies in cloud adoption and the impacts of regulatory requirements aligned with the goal in developing pathways for achieving success in moving to the cloud. A multiple case study design provided the means for reviewing the strategies of leaders. As Vohra (2014) noted, this case design aligns in providing researchers with complex disruptive technology projects such as the cloud adoption initiative. The interviewees included high level organizational leaders from the metropolitan Washington, DC, area. The interviews resulted in extrapolating various decision-making strategies to overcome challenges related to cloud adoption.

Facilitating communications among organizational types provide a theoretical framework for establishing a cooperative effort of cloud adoption. A uniformed, strategic approach contribute to a cooperative conceptual process before submitting a cloud service to FedRAMP^{SM} for authority to operate or in leveraging existing submissions to meet compliance. Positive social change occurs with the improved leader and subordinate relationships developed with LICM. The positive social change also occurs with increased environmental sustainability, security of system integration, and reduced hardware, software, and equipment requirements resulting in a reduction in energy consumption.

Interpretation of Findings

LICM consists of four classical theories that comprise the theoretical framework. The first theory was Lewin's CM for positive social change in organizations where the social change required dismantling the former method; changing the method; and, locking back to a permanent method (Bruce, 2015). The second theory of leader-member exchange (LMX) provided a symbiotic relationship with a focus on the relational perspective of influence to accomplish mutual organizational goals (Burch & Guarana, 2014).

The third theory was intentional change theory (ICT) which promoted positive social change through effective coaching and team building that aligned with the goal of the organization (Howard, 2015). The fourth theory was Appreciative Inquiry (AI). AI practice queries situational occurrence. This approach occurred with the practice of asking questions to obtain a positive action, resulting in organizational strengthening (Orr & Cleveland-Innes, 2015).

In this study, for example, requesting change management approaches to cloud adoption resulted in data gathering of optimal organizational strategies. Before ending the interview, an open-ended question was asked to each respondent whether there were any further insights in cloud adoption as comments or advice. I developed LICM as a strategic leadership approach for documenting cloud service adoption strategies from the participants. The approach of requesting advice upon closure of the interview provided an open-ended finding as a contributory comment.

Lewin's scientific analysis at Cornell University and the Massachusetts Institute of Technology (MIT) gained notoriety with his concept of social change (Bruce, 2015). Lewin theorized change theory as a process that involved the stages of unfreezing (breaking down structural foundations); changing (altering the structures), and then refreezing (restructuring these foundations permanently).

Lewin's earlier studies incorporate change theory with his studies of perceived aspiration theory (Bruce, 2015). Lewin was renowned for investigating action research theory and testing techniques in a variety of group processes (Talmaciu, 2014). The utilization of Lewin's change theory for the organizational development of leaders in the corporate university serves as a theoretical foundation for this study for LICM (Talmaciu, 2014).

This change management approach was the dismantling theory of Lewin in organizational change where the previously established method for conducting business engaged the adoption of challenging and innovative approaches (Burnes & Cooke, 2013). Lewin also provided field theory analysis in identifying the basis for changing individual and group dynamics by influencing behavior over time (Burnes & Cooke, 2013). Lewin purported that change occurs in a social environment that will support the initiative (Burnes & Cooke, 2013).

Group dynamic study with rigor was demonstrated by Lewin in his approach for change when evaluated with opposing theorists in Gestalt psychology (Farrands, 2012). Lewin's theory integrated this concept of identifying leading individuals as a group to achieve the goal of an organization (Burkes & Cooke, 2013). The strategies portrayed by

the participants provided the information necessary to apply Lewin's theory of disrupting the previous manner of conducting business to permit a path for leading change in organizations.

Leader-member exchange (LMX) was an analysis of group dynamics which pairs as an integral framework in LICM (Chen et al., 2014). In evaluating the dynamics with Greedy, the propensity provided a score in a situation for the probability of the observation (Chen et al., 2014). Intentional change (ICT) was third in the theoretical framework of LICM. Appreciative Inquiry (AI) was fourth in the theoretical framework.

An example of a supportive social environment was a corporate university setting in e-learning (Nasr & Ouf, 2012). Interaction with social media learning permits supportive environments either on site or online (Nasr & Ouf, 2012). Approach for training leaders in cloud adoption; the use of interaction with leaders and subordinates with social media was a communicative strategy for ascertaining problems, concerns, and impediments to cloud adoption. Gathering the results of the communications among leaders and subordinates via social media in a secure organizational environment provides an opportunity to circumvent adoption challenges.

Optimal Greedy analytics provisioned data matching on challenges in identifying propensity scores (Farrands, 2012). NIST provides a simulation resource tool of Koala for infrastructure training; Greedy algorithms are an adaptable modeling resource that was applicable for project planning in the cloud (Huysmans et al., 2015). Project planning for tasking and meeting milestones in pre-testing of actual cloud systems for mission

compliance and resilience aligns with the use of Greedy and agile project management with LICM (Huysmans et al., 2015).

In future studies, project planning with the agile approach provides the capability for team coalescence and success in achieving the goal through the integration of a project plan (Huysmans et al., 2015). Testing this hypothesis was the objective for future research recommendations. The team coalescence aligns with LMX in LICM to provide for a supportive goal as identified by the leader.

Future research with agile project management was an approach to establish leader training objectives (Williams, 2012). The agile principles include customer satisfaction; on demand change requirements; and, frequent delivery and timescale by demand. These first three objectives target customer satisfaction. The next three principles include daily communication with the team which supports the LMX theory in LICM; building of projects with support and trust which aligns with IC theory for LICM; and, team face-to-face contacts for sharing information as AI theory for LICM. These three objectives address the relationships of the leader and member to achieve the goal with measurable positive outcome goals achievable with AI theory.

The next two agile principles on performance are computer system functionality checks for system development and life cycle management; and, sustainable development that aligns with a positive social change in responsible technology acquisitions. The next Agile principle aligns with the achievement of technical excellence and good design for IC theory for LICM. The Sprint methodology addressed in agile project management provides an adjustable simplicity in maximizing the goal to work toward uncompleted

tasks. The approach aligns with the Greedy algorithm on start_finish_start approaches. The next Agile project plan principle targets the content capture of the design for meeting architectural requirements, a design from self-organizational teams, alignment with leader empowerment for AI theory in LICM; plus, the introduction of education for a corporate university presentation.

The final principle provides a reflection of effectiveness to adjust behavior and change according to Lewin's change management theory for LICM overall (Williams, 2012). This synthesis aligns with the methodology and triangulation of the data gathering findings. LICM theoretical framework, a conceptual framework based on participant strategies, and synthesis of regulatory authority with a leader delivery model answers the research questions. The LICM theoretical framework, concepts for integration based on developed regulatory authority, and, the incorporation of participant strategies to document a leader model of agile project management delivery in a corporate university provide data saturation in answering the research question.

The achievement of assigning a value to agile project management outcomes provide the leader vision to identify the timeframes for accomplishing priorities using the techniques of SCRUM and Sprint prioritization (Albero Pomar, Calvo-Manzano, Caballero, & Arcilla-Cobián, 2014). The release of the configured software of cloud engages once the roadmap has been established with goals that focus on group efficiency (Albero Pomar et al., 2014). This aspect of group direction aligns with the LMX element of LICM. LICM is an integrated approach based on the classical theories of change management to achieve an optimal outcome based on proven strategies. Standardization

simulation in a corporate university provides a venue for the release of a leader model for project management implementation. The standardization criteria included the subject of future research. Future research recommendations discovered in the findings of this study and other emulated studies result from the replication of the methodology provided in this research.

Exploration of LICM with agile project management planning in a corporate university training venue was the subject for future research. Statistical analytics align with Greedy algorithms for Agile SCRUM and Sprint team effort (Huysmans et al., 2015). Tracking progress with these approaches in project planning supports team cooperation in meeting milestones in pre-testing of actual cloud systems for mission compliance and resilience (Huysmans et al., 2015). Future research recommendations include the subject for tracking progress with project planning.

Agile principles for project management align with LICM for delivery in a corporate university (Williams, 2012). The stakeholder prioritization of ISO 26000 meets with the first principle of customer satisfaction and delivery of viable software. The on-demand change requirements and competitive advantage are supportive of Lewin's theory of dismantling the current manner of conducting business to replace it with a new organizational method that is intentional in its change. This intentional change is LICM.

The delivery of software frequently and with a flexible timescale provided an approach of consistent project management task accomplishment (Williams, 2012). The effort to work together supports LMX theory in LICM. Building projects with support and trust are intentional change with an appreciative inquiry for team sharing of

information to support the goal. The software engineering effort supports the system development life cycle in cloud software as a service (SaaS).

The sustainable development combines with positive social change outcomes in corporate social responsibility. The functional customer collaboration in responding to change requirements of cloud services matches with the abandonment of previous plans. This revision of technology design replaces current practices as a Lewin theoretical approach in LICM.

Technical excellence and good design provide support for intentional change and the simplicity required in agile maximize the goal to work forward and complete the tasks that remain regardless of order or precedence. The Greedy algorithm of continuance establishes a start_finish_start with reaching the milestone. Moving forward transpires once the milestone completion occurs as a continuum toward sequential task fulfillment. The architectures, requirements, and designs from self-organized teams provide leader empowerment with appreciative inquiry in LICM. The education acquired in a corporate university provide the requisite strategies for success.

The reflection of effectiveness and adjustment of behaviors require a change of practices as in Lewin's change management theory in LICM. A roadmap to value added in the corporate university setting provides the strategic knowledge necessary for standardization approaches. A future research goal was acquiring a singular, standardized approach based on the findings of this study.

The findings from the interviews contribute to the body of knowledge for the identification of strategies in cloud adoption using LICM. Each question was assessed to

identify the leader initiated change management approach in cloud adoption. The approach assessed perceived effectiveness by the respondent. Rating according to the response was provided based on the canonical scale. Pertinent traits and outcomes in achieving a cloud service integration included annotation, coding, separation by nodes using CASDAQ and synthesis to identify themes for evaluation (Bazeley & Jackson, 2013). The ratings of interview findings demonstrated an above average finding in LICM for all participants.

CASDAQ software findings identified five emergent themes including a category labeled as “Advice.” The advice category provides supplemental knowledge and recommendations for future adoption efforts to assist in the strategies and integration efforts adaptable in the use of a project plan (Ramasubbu et al., 2015). The training to acquire LICM provided in a corporate university setting was a recommendation described in Chapter 5. The eight participants in the study demonstrated the need for adopting or abandoning the previous strategies to establish new approaches for adoption which supported LICM as identified in Lewin’s change management theory.

Limitations of the Study

The trustworthiness includes credibility, transferability, dependability, and confirmability. Several areas for ensuring trustworthiness provided additional assurance. Limitations occur with credibility in ensuring that the optimal selection of representatives was acquired. Selection criteria did create a validity in assurance although this was a limitation based on numerous possibilities in the arena of highly qualified leaders in cloud adoption. In this study, high-ranking officials with extensive experience in change

management and leadership provided optimal input for facilitating change in organizations and aligned with LICM. Cloud adoption experience varied among the participants, however; the addition of two hybrid organizational representatives ensured data saturation. Extensive regulatory experience within the participant resource pool provided insight on the optimal guidance available in securing the cloud. A standard approach for incorporating the cloud remains a gap in the literature.

In questions of conformability, the leaders describe a variance that required cloud adoption with the caveat that standardization was limited in several areas. A reassessment was necessary for optimal validation that ultimately provided certification and accreditation of systems. FedRAMP^{SM} was the authority for obtaining a listing as a cloud provider if all criteria for the authority to operate meet compliance criteria. Although all cloud adopters do not seek to be cloud providers, a uniformed approach to adoption ensures continuity of quality, cooperative standardization, and ease of communication in identifying uniformity.

The acquisition process must be redesigned to explore technology purchases to test cloud service feasibility. Proposed acquisition decisions require revised policies to meet the mandatory cloud initiative (Van Roekel, 2012). Decision-making required successful acquisition processes to meet agency mission requirements in the selection of cloud technologies (Farrands, 2012). This research provided a methodology for cloud service selection based on successful decision-making.

The decision-making process does not provide a definitive choice selection for the organizational leaders. Choices made on a particular cloud service deployment

model was contingent on the mission of the organization and the security requirements of the stored data (Lockett et al., 2014).

The decision to acquire a cloud service must integrate with the risk assessment (Blank & Gallagher, 2012). Koala was a cloud simulator at NIST that tests cloud service functionality by creating reality scenarios and employs statistical analysis to identify limitations (Ross, 2012). This study does not simulate and test cloud service technologies to determine if criteria met security and privacy requirements within the specified organizational type. This determination conducted after selection based on the mission of the organization. Use cases include an asset that was used to determine the outcome of various implementation types (Ross, 2012). The methodology to ensure functionality was available in data resources identified as business use cases (Ross, 2012).

Recommendations

Further research on balancing the time constraints in adoption, change management criteria, release criteria before deployment of the cloud service, and the associated documentation required for meeting the security and privacy requirements remains a difficult undertaking (Samani et al., 2015). Risk management provides solutions for determining the level of security in the cloud service (Howard, 2015). Exploration of the criteria necessary for achieving optimal cloud service design, implementation, and secure services necessitated fastidious adherence to standards and guidance provided by organizational leaders (Ross, 2015). LICM provides a direction for future cloud adopters in creating conditions for achieving success.

The second Federal CIO released the 25-point implementation plan which contained time constraints for agencies to complete various phases of adoption (Van Roekel, 2012). This plan followed the Cloud First initiative established by the first Federal CIO. The plan stifled and was not incorporated in subsequent standards and alluded to in policy as a caveat for completion based on the judgment of the prospective adopter. Considerable leeway without standardized or enforced procedures caused latency in adoption due to required regulatory authority.

An assistive resource approach consists of a project plan that encompasses tasks for adoption. Cloud service adoption aligning with current regulatory authority; and, identification of the unique challenges to the specific project facilitate LICM to achieve success.

The informational guidance provided by FedRAMP^{SM} was an assistive resource for leaders in the decision-making process. This system was subject to stringent criteria before being available for government agencies. The agency, however; was not able to use the system due to their legacy systems, mission requirements, and possible unique security requirements not identified by the approved system. These unresolved conundrums include areas for future research.

In exploring the various participant change management approaches, the findings presented to identify LICM with recommendations on training requirements applied to future research as identified in Chapter 5. Project management modeling was explored for future research in identifying the training protocols for leaders integrating cloud service (Ramasubbu et al., 2015).

The results of this study identified potential leader education initiatives based on instructional design. The identified strategies and subsequent educational effort provide an opportunity for future research pursuits in educating potential cloud adopter leadership. The leaders consider the execution of the change management initiative in a project management plan which was available for addressing in future studies (Dane & George, 2014).

The metrics provided in this study provide the basis for future research in developing a project plan (Ramasubbu et al., 2015). Future research exploration may discover the potential to provide these services in a fast, expeditious manner and a lower cost. Future research analysis also provides an opportunity to determine the most cost-effective choices for cloud adoption.

Teams view logical frameworks for decision-making in a pragmatic manner in Gestalt approaches with the Greedy algorithm (Farrands, 2012). In synthesizing this approach, decisions occur in a simplistic manner that was relevant, selected, or not applicable (Farrands, 2012).

Project management was matched with strategic approaches based on testing the balanced scorecard analysis as a future research undertaking (Ramasubbu et al., 2015). Attempting to establish resolutions creates a philosophical response to an elusive and pragmatic question on defining the reality of the internet of things (Pietrzak et al., 2015). Identifying tasks to be accomplished in support of an organizational goal was a strategy explored in this study for future research. Leader training was discussed in this multiple case study to identify the need for future research.

Fostering leadership traits that contribute to a workable leader competency model contribute to the desired outcome for this study as a reference for future research exploration. The LICM was a theoretical leader approach in an organization setting. LICM serves as a strategy for cloud adoption. Project plans include designs based on the study findings for future research (Ramasubbu et al., 2015).

Additional strategies for continuous improvement would be the subject of future research based on the findings of this study. Identifying tasks to be accomplished in support of an organizational goal was an explored strategy in this study for future research. Agile project management may be a resource for goal-setting (Ramasubbu et al., 2015).

The leader competency model combined with an effective project management plan provided the impetus for future research (Baskarada, 2014). The study contains relevant substantiation, and a leadership competency model was referenced in Chapter 5 for future research to explore my contentions. These contentions compare with the theory of LICM evolved from classical approaches and synthesized with current leader practices.

These interview evaluations combined with a synthesized exploration of classical and current change management theory for identifying a leadership competency model for future research development. The case study includes a review of the Risk Management Framework (RMF) as applied to the cloud computing selection process decided by leaders in the organization (Howard, 2015).

Subsequent articles and papers on recommendations for effective and revised initiatives include future research initiatives for exploration upon completion of the study. Study results positively affect the process of selecting cloud technologies by providing knowledge from the wisdom of organizational leaders in deciding on acquisition and cloud adoption strategies. The participants identify the dichotomy of necessity in moving to the cloud and the insight on knowing when not to move to the cloud as provided in the interview findings. The move to the cloud requires LICM in determining the timing, relevance, and strategy in adoption.

The analysis identifies participant strategies in cloud adoption and facilitates approaches for future research in educating leaders in project management initiatives with LICM. A future researcher was capable of repeating the study based on the current method and approach in gathering the evidence. The delivery of a standardized approach for future research provides a basis for the findings of this study on LICM for cloud adoption.

The research question responses validate the viability of LICM as a strategy for cloud adoption as discussed in the findings of the study. LICM provides a theoretical framework for accomplishing change management to support cloud service adoption (Krippendorff, 2013). The implications and challenges addressed in this research study provided interpretations as discussed in Chapter 5 with recommendations for future research.

As discussed in Chapter 5, it was recommended that LICM practitioners develop the cloud service based on training in a corporate university setting. Also, a project plan

and standardized approach complies with current regulatory guidance. A plan of action contributes to the advisement criteria for leaders in all organizations in completion of an initiative in cloud adoption.

A standardized approach and an associated task driven agile project plan for implementation include recommendations for future research. Recommendations include the training of leaders in a corporate university in Chapter 5 for future research exploration. Tasks in project management are difficult to complete successfully in research and development (Ghilic-Micu et al., 2014). A laboratory environment provides a potential cloud adopter with analytics for determining the feasibility of implementation of a cloud service. During the testing phase, test data simulates potential outcomes. These are termed as business use cases (Huysmans et al., 2015).

Failure of a required outcome or milestone results in termination of the project, a recreation of the project, or additional assets and resources provided (Huysmans et al., 2015). In agile project management with Greedy, a module was completed in the project or a milestone achieved, and the successful module was used as a bridge to move to the next test design of the software, for example (Huysmans et al., 2015). Sprinting in agile project management includes a finish, start, finish endeavor where constant progress transpires on the success with the steady pursuit for a successful outcome. Precedence would be a target for the continuance of the project tasks.

Implications

The capabilities in cloud service adoption dramatically reduce the requirements for tangible hardware and software and contribute to corporate positive social change for

organizations. This capability impacts the environment in a positive manner. Cloud computing was a green technology, yet the adoption was viewed with skepticism and reluctance due to concern for security and privacy (Samani et al., 2015). The leadership and associated standards and guidance have contributed to the resultant outcome of positive social change. ISO 26000 and the Cloud First initiative developed during the same timeframe. The 25-point implementation plan developed to guide the organizations in meeting the requirements for the Cloud First initiative (Van Roekel, 2012).

The advent of professional certification requirements impacted the pool of resources for cloud integrators. Professionals with security and privacy expertise for cloud systems became viable assets for cloud service adoption (Erl, 2013). The Cloud First initiative was a stepping stone from mandating that government agencies implement cloud services whenever possible; to the requirement that professionals seeking employment in these services; meet the criteria for certified professionals in cloud adoption (Van Roekel, 2012).

The possibilities of greater interoperability and efficiency with cloud services created a viable means for faster and more efficient delivery of services. Positive social change occurs in various critical areas such as police response, medical care deployment, disaster response, and other areas requiring coordination when cloud services are adopted.

LICM was the combination of classical theories to provide leaders with an approach to change management in facilitating cloud adoption. Analyzing the interview responses to determine the approaches evolved to achieve change management resulted

in identifying a leader model for achieving sustainable social change. ISO 26000 was not designed to provide for certification or compliance, however; its implementation procedures are based on a checklist of behaviors and corporate social responsible actions necessary for positive social change (Messnarz et al., 2014). Cloud services provide an avenue for reducing the environmental footprint. This positive social change was extended by regulatory requirements that have been established since 2010 with the advent of ISO 26000 (Ross et al., 2015).

Kurt Lewin initiated the change management social theory of unfreezing, freezing, and refreezing business procedures. This approach applies to LICM as the first of the four theories in facilitating social change. The previous method of conducting business needs to be dismantled to permit new development in establishing social change. The change was a difficult undertaking and regardless of its benefits; the new initiative must replace the old procedures to introduce the positive social change.

The positive social change also occurs with the improved leader and subordinate relationships. The second theory of LICM includes leader and subordinate cooperation and team building. Leader-member exchange necessitated a cooperative, supportive, and engaged effort from the leader to empower the member. The member becomes committed and dedicated to the outcome by identifying with the leader vision.

The third and fourth theoretical initiatives are intentional change and appreciative inquiry for accelerating positive social change. The change identified the path for achieving the goal and aligns with reaching sustainable development in an ideal change management environment. This initiative facilitated commitment, loyalty, and

appreciative inquiry where all participants are equally engaged yet follow leadership in achieving the goal.

The positive social change also transpires with increased environmental sustainability, security of system integration, reduced hardware, software, and equipment requirements that result in the reduction of energy consumption (Hahn, 2012). Cloud technology implementation provides quick solutions and convenient access for organizations (Samani et al., 2015). Social responsibilities identified in ISO 26000 indicate that the stakeholder in the organization must receive prioritization in achieving cloud adoption goals (Messnarz et al., 2014).

A paradigm shift transpired from conventional computing to the leveraging of features in a cloud environment. This shift required a reorder of business models and the manner in conducting business (Caytiles et al., 2012). Internet services evolved to on-demand shared resources with access to email, social media, storage, and applications in a virtual environment. Risk assessment required evaluating the security and privacy posture of the cloud environment. Risk management protocols evolved in past years provided guidance on meeting a standard of acceptance.

Government agencies and industry organizations paired to identify requirements for cloud adoption. Military organizations paired with private and industry organizations to receive guidance on implementation. Academic adopted portal access to the public cloud for educational provisions (Seck et al., 2014). The artifacts from various organizational leaders included regulatory authority for guidance.

Standardization of cloud adoption services remained elusive. This gap in the literature required an exploration of strategic initiatives in adoption. The interviews with representative leaders of organization type provided insight in identifying strategies. Agile principles in project management applied in a corporate university venue aligns with the introduction of these strategies to prospective leaders of organizations (Williams, 2012).

Conclusions

Cloud computing adoption has been a challenge wrought with attempts by organizations to ensure the safety of their assets within an intangible environment. The reluctance to move resources to this environment despite the acceleration of technological advancement becomes a conundrum for organizational leaders. Unidentifiable implications with uncertainties on decision-making plague cloud adoption efforts. Despite the advancement in the adoption of this disruptive technology and the change management impact of the paradigm shift in the manner of conducting business; leader uncertainty on approaches becomes a stop gap in progress.

This case study began with the Cloud First mandate from the first Federal CIO. The second Federal CIO offered a 25-point implementation plan for agencies to achieve cloud adoption. The third Federal CIO expanded on the 25-point implementation plan by establishing the cybersecurity strategy and implementation plan (CSIP) for the federal civilian government.

Another effort evolved to include a new initiative to assist agencies entitled FedRAMP^{SM} which focused on security and privacy control assignment in the cloud

environment including assessments of systems to determine compliance with criteria necessary for these systems to receive authority to operate. NIST working groups developed ad hoc standards of explanation, guidance, challenge identification, security, privacy, and forensic solutions as developed by industry professionals. The international standard of ISO 26000 focused on a positive social change to improve the environment footprint and reduce cost expenditures. Also, various organizations included the Cloud Security Alliance (CSA) based in Canada initially with growth expanding throughout the world. ISC^2 developed a certification for cloud security professionals to complement other marketable skills in security compliance.

The recommendation for adoption includes training leaders to embrace the cloud in a corporate university setting with a standardized approach of LICM. Leader interest and support in moving forward was often crippled by the lack of follower support, training inconsistencies, the absence of shared knowledge, and continuity in cloud adoption practices. These challenges contributed to the slowing toward cloud standardization and adoption. This research study explored the difficulties, challenges, security concerns, and strategies based on LICM as a means for moving to the cloud with increased confidence and assurance (Wood, 2014).

The study is unique with original input from leaders involved with the development of the risk management framework (RMF), creation and management of FEDRAMP^{SM}, educator on FEDRAMP^{SM}, CIO representatives from the highest level of influential government status. Interviewees included military officials with starred General Officer levels, CEOs from industry, academia, and the non-profit sector. An

entrepreneur creator of the Canadian-based CSA organization plus participants and contributors to NIST standards including the researcher. The interviewees in this study possess the traits and leading change aptitude of LICM. Documentation assessed in this study also provides insight on the journey in developing standards and guidance for cloud adopters including an initial direction on a model for standardization of cloud systems for future research.

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Appendix A: Diagrams

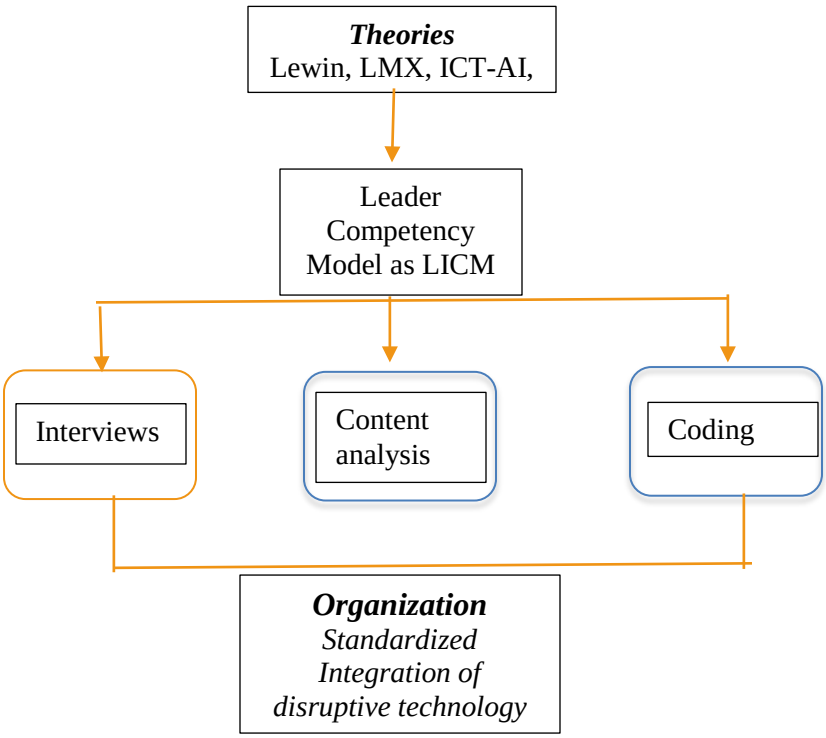


Figure A1. Concept map of theories and framework. This depiction of the theoretical foundation and conceptual framework of this study was presented as a map. The foundational theoretical framework for a competency model of LICM integration was a synthesis of the classical theories of Lewin's change model, leader-member exchange, intentional-change theory, and appreciative inquiry. The concepts of change management and organizational strategies obtained through the literature and interviews of organizational leaders provide recommendations in this multiple case study for standardized cloud technology adoption (Erl et al., 2013).

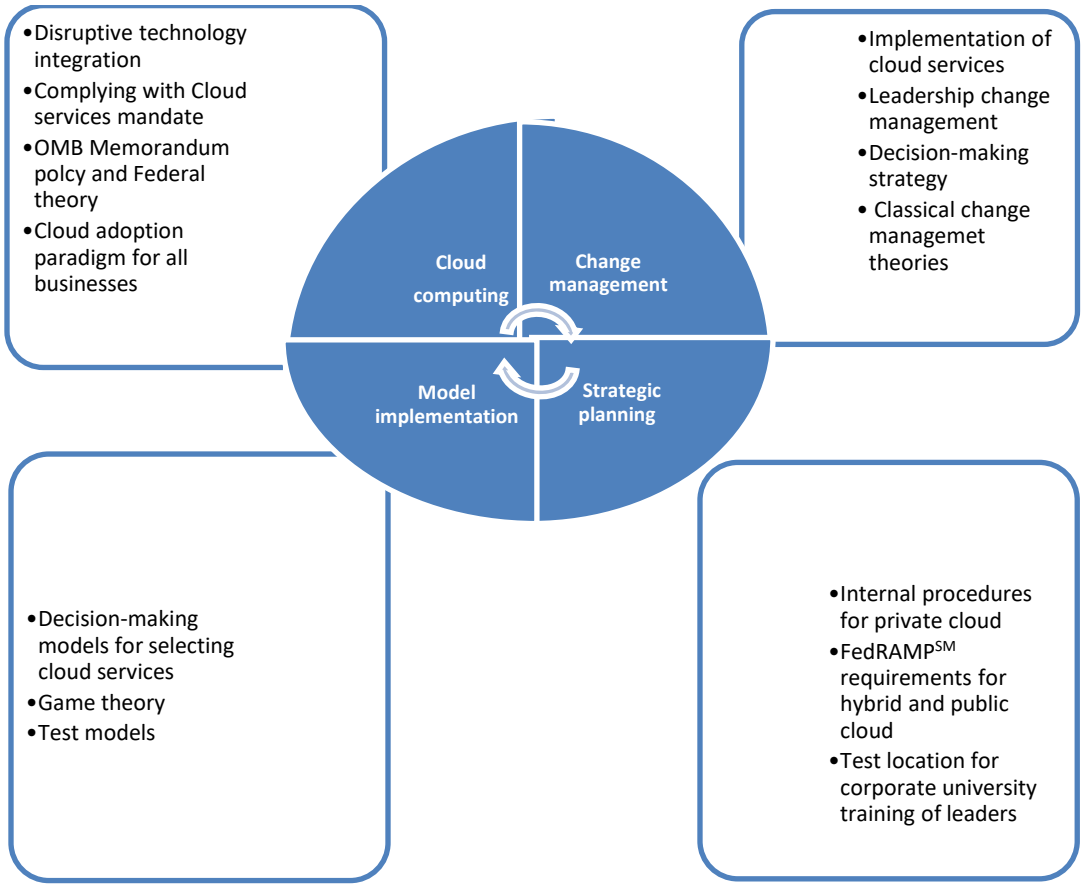


Figure A2. Main themes in the literature review. The diagram was an original concept map that depicts the variety of areas of inquiry in the literature. The research questions incorporated in this framework supported the main themes. The literature review was based on the four themes of cloud computing, change management, model implementation, and strategic planning based on LICM. A relationship was explored among classical theoretical concepts and current change management and decision-making approaches. The exploration for a strategy for cloud adoption results from an exhaustive review of possible theories and approaches identified in the literature. The focus of the interview questions was synthesized into the research question theme to determine effective approaches for cloud adoption (Van Roekel, 2012).

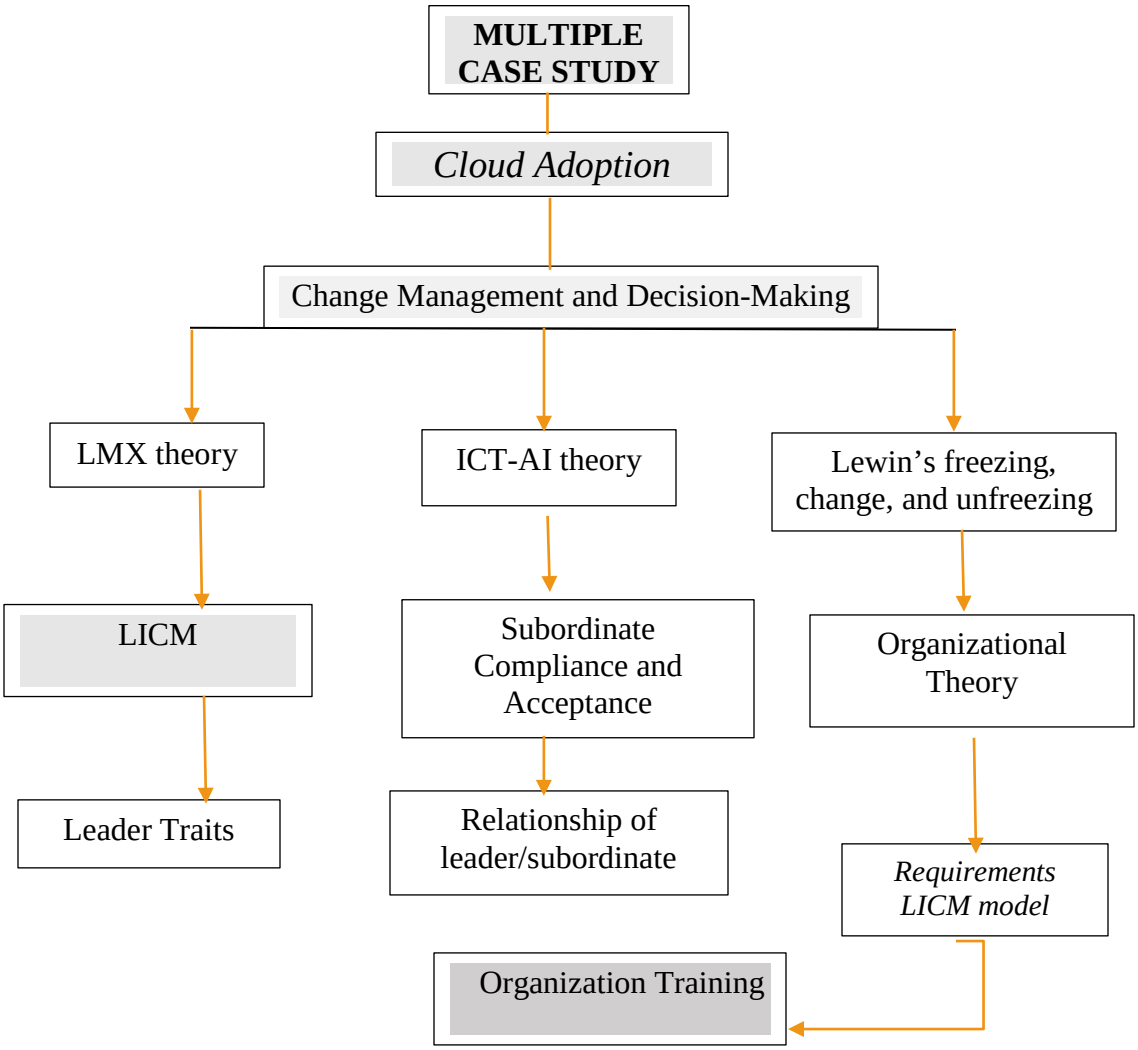


Figure A3. Cloud adoption theory. As a result of reviewing the literature, this theoretical concept for cloud adoption using change management classical theories to develop LICM provide and validate an optimal approach for conducting the multiple case study was identified (Cronin, 2014). The basis for supporting LICM in integrating cloud technologies into an organization included a multiple case approach based on successful adoption. The four classic theories synthesized as LICM with requirements identified for the organization training was the approach for the multiple case study (Qian & Palvia, 2013).

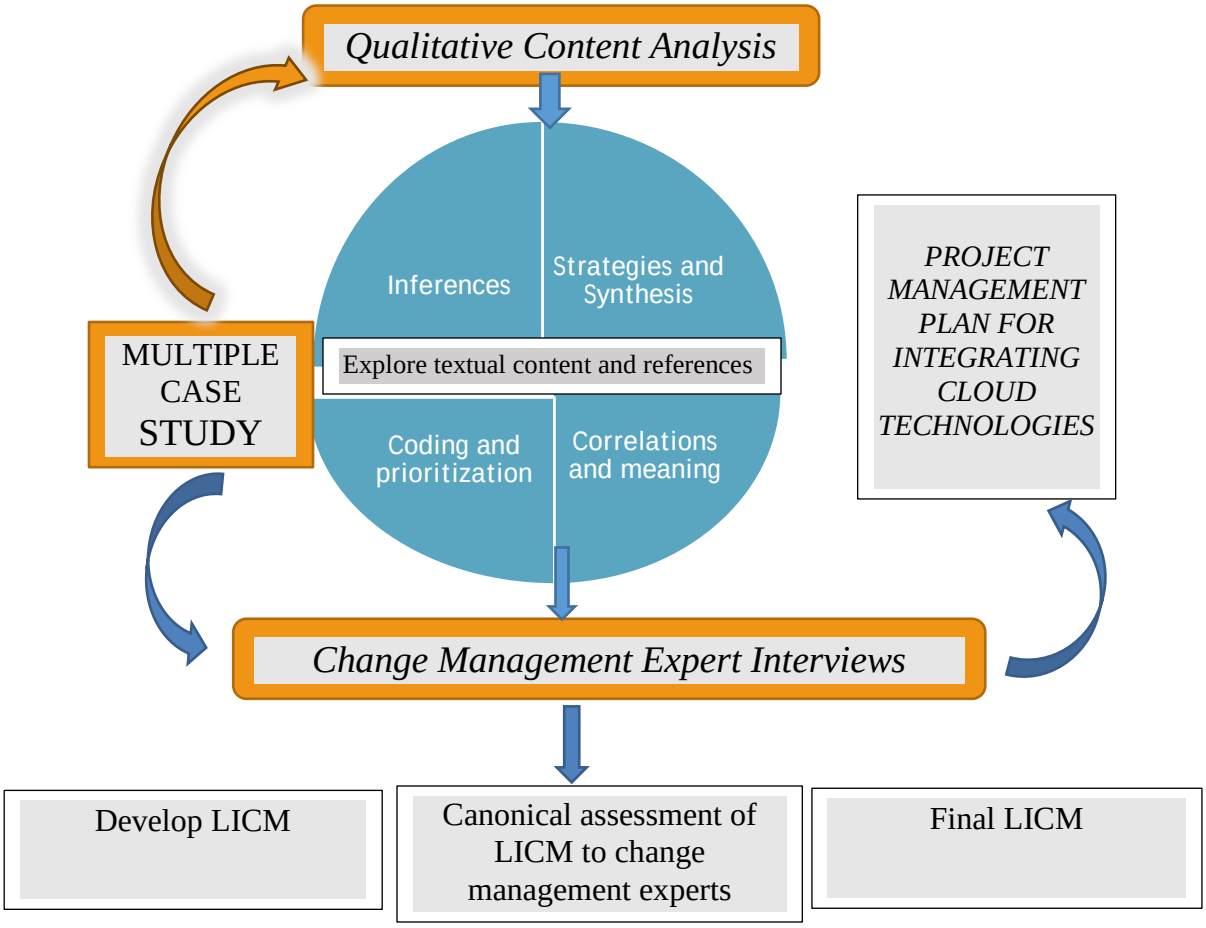


Figure A4. Methodology diagram. Content analysis provided the methodology flow of the qualitative multiple case study through analytical evaluation, coding, correlations, and inferences to achieving a competency model as the result of change management interviews (Mitchell, 2014). The assessment was an evaluative resource to support the validity of the final deliverable. The final deliverable was a LICM approach that developed to incorporate cloud technologies. It was an exploration of existing leadership practices that align to adaptive models. This diagram depicts the methodological approaches in this multiple case study (Garson, 2013).

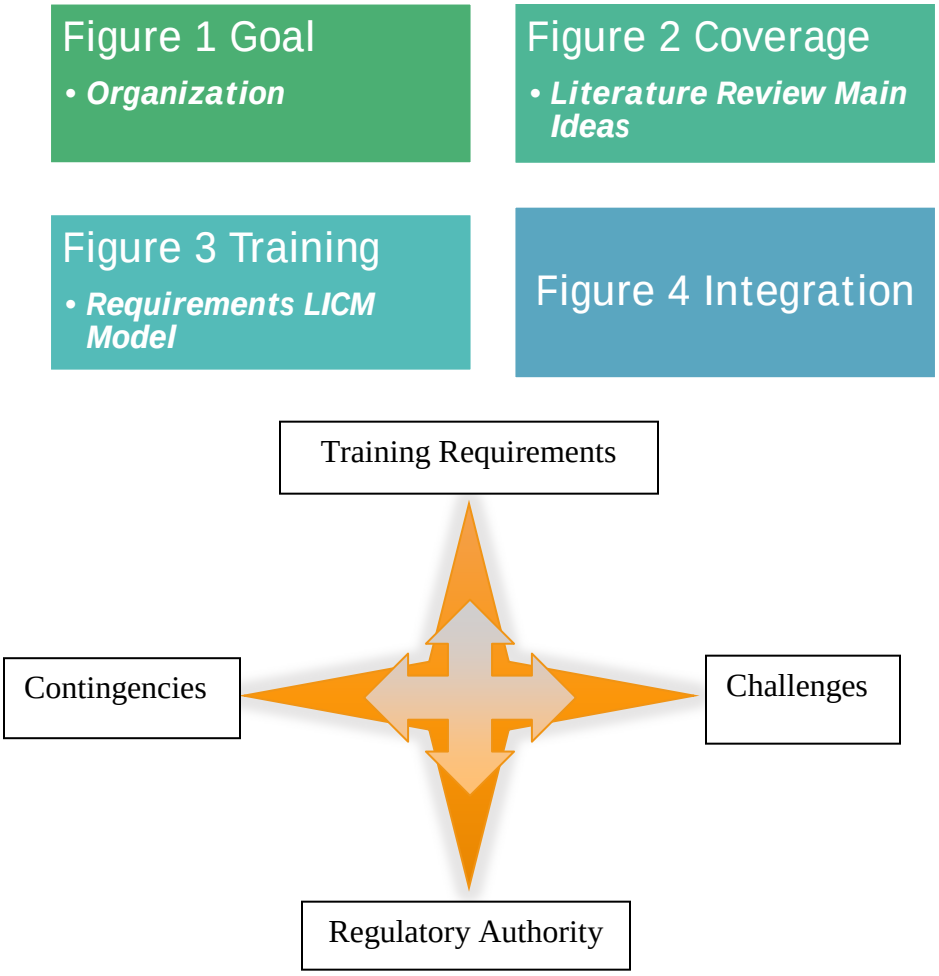


Figure A5. Alignment of concepts, theories, and themes. A change management model based on the theories of Lewin's CM, LMX, ICT, and AI was depicted above (Lotfi, et al., 2015). The concepts and theoretical approach align with the themes identified as a result of coding based on nodes facilitated by analysis with CASDAQ (Bazeley & Jackson, 2013). This combined with a leadership competency model that serves as a catalyst for technology integration in the corporate university (Clark et al., 2014). A project management plan for each organization type was introduced in the respective corporate university to integrate a cloud service (Ramasubbu et al., 2015).

Figure A6. LICM and participant ratings. Four classical theories combine to identify a leader change management approach for cloud adoption strategies. The interview findings identified the change management leadership tactics. Decisions in cloud adoption required a complexity of identifiable considerations to overcome challenges for successful innovative adoption. LICM strategies include the training of leaders, corporate university venue, and standardization practices.

Appendix B: IRB Forms (Attachments 1-4)

Request for Prospective Participants

Attachment 1

Memorandum: Invitation to participate in doctoral research study: A Multiple case study on Leader-initiated Change Management for Adopting Cloud Services

Subject: Request for Prospective Participants in Cloud Computing Adoption Strategies by Organizational Category

From: Nancy M. Landreville, Researcher

To: Cloud Adoption Change Management Leader and Integrator of Cloud Service(s)

This invitational memorandum addressed prospective volunteers to participate in a doctoral research study on strategic approaches by organizational leaders in integrating cloud computing technologies. Although there was no monetary compensation offered, the experience provided benefits organizational leaders with cloud integration strategic approaches in attempts to provide a uniform approach for adoption. You may also choose to receive an acknowledgment of participation in the study as a participant by completing a release form of your name and organization upon selection to participate in the study. The release of your name and organization in this invitation provided the contact and organization type for categorization purposes only and remained confidential.

This form was a request for voluntary participation in the study. If selected, you receive a subsequent consent form which includes the option to have your name and organization name acknowledged in the study as a participant. The release of your name and organization name in the study was not a requirement for participation in the study.

The study was a qualitative multiple case study in six organizational categories. The six categories include the government, industry, military, private, non-profit, and academic organizations. Respective interviewees are purposive participants in the study from high leadership positions within the organization.

As an integrator of cloud computing services in your organization, your perspective, and strategic approaches provide perception and valuable knowledge to the science of cloud computing. The eight selected representatives provided a perspective on the challenges and success of cloud integration strategies to explore leadership strategies in the integration of cloud services in organization types (McClean et al., 2013). The findings provide knowledge for a standardized approach to leader-initiated change management in cloud adoption.

This initial request elicited possible participants for the study. The study necessitated a few hours of your time to participate in an interview. A subsequent validation of the participant proceedings ensured the proper capture of the content and intent of the interview. The study was designed to ascertain the strategic approach taken in adopting the cloud service. This exploration included the leadership strategies, and expertise demonstrated to reach the goal of cloud integration. Upon acceptance of participation, the interview was then scheduled during amenable hours in the work week generally within the 9:00 am to 5:00 pm time frame.

As a participant, the venue was a library conference room or venue chosen within the vicinity of the workplace. The interview transpired at the organization office venue. The duration of the interview was approximately two-hours in length and recorded by the

digital device and a table microphone that was visible and placed on the table. The interview requested within five days of receipt of the acknowledgment of the signed form and selection as a participant in the study.

The participant received a summary of the transcript by email within two to three days after transcription of the interview. An email with a receipt request was sent to the participant with an attached summary of the transcription on day two or day three after the interview. The participant verified the validity and intent of the content. A short follow-up phone call scheduled on day five after receipt of the transcript to ensure the interview was complete and to confirm the validity of the transcript. The duration of the follow-up phone call was approximately one-half to one hour in length and scheduled at a time that was amenable with the participant.

During the follow-up phone conversation, any questions on the integration of the information required verification. The researcher summarized the transcript, and the participant validated the content summary. Validation completion occurred no later than day seven or day eight.

An acknowledgment of appreciation for your cooperation in participating in this important study, required the completion of a form releasing name and organization for the purpose of providing a thank you. The appreciation exemplifies the knowledge provided in the identification of the pivotal role of leader integrators to facilitate change management in cloud adoption (Dickens, 2015). The results of this study provide possible solutions on strategies for cloud adoption to increase the body of knowledge in obtaining a standardized approach for cloud service integration.

If available to participate in this study, please denote your acceptance by providing your name and organization below. Your name and organization remain confidential in this study. Your name and organization provide information for contact purposes only and an acknowledgment in the dissertation as a thank you. The organization name was for classification of the organization type in the findings. Your name and organization name release occurred acknowledgment in the dissertation only for participants who signed a consent form requesting an acknowledgment thank you. If selected for the study, please sign the associated consent form requesting an acknowledgment thank you for your participation in the study. Please retain a copy of this form for your records.

If selected, a consent form requesting your participation in the study included an acknowledgment form to release your name and organization as a thank you for your participant participation. If you sign the form, your name and organization are released as an acknowledgment. If you do not sign the form, your information remains confidential with no acknowledgment. The acknowledgment form option to choose to release your name and organization are not criteria for participation in the study and is not a requirement for participation.

Please complete the enclosed form within five days of receipt of this request to participate in this study. My email address is xxxxxxxxx

Name of Prospective Participant: _____

Organization Name: _____

Organization Type: _____

Researcher Name: Nancy M Landreville

- Please select your interest in participating in the study and return the form electronically by clicking on the Submit Form below after indicating your interest and responding to the five questions as appropriate. Thank you.
- Interested in participating: _____
- Not interested in participating: _____

If interested in participating, please answer the following five questions and include these responses with the form:

- 1) Did you the leader in implementing an initiative for cloud services. ___
- 2) Did you lead a successful effort in adoption _____
- 3) Did you establish change management protocols for implementing the cloud service in your organization _____
- 4) Did you responsible for implementing initiatives in sustainability and reducing the environmental footprint _____
- 5) Did an authoritative body approve the cloud service for operational compliance _____

Please retain a copy of this form for your records.

IRB: 11-17-15-0130598

Expiration: November 16, 2016

Participant Consent Form

Attachment 2

Multiple case study on LICM for Adopting Cloud Services

Purpose: This memorandum elicited a request for your volunteer participation in a doctoral research study. There was no monetary compensation for your volunteer participation in this study, however; your insight was valuable in furthering the effort to implement cloud services for integrators in organizations. An optional form requested permission to provide your name and organization as an acknowledgment in the study. This form was an authorization to release your name and organization in the study acknowledgment as gratitude for your participation. The release of your name and organization name was not a requirement for participation in the study. Please retain a copy of the form if you choose to release your name and organization for an acknowledgment. Otherwise, your name and organization name remain confidential and in the study.

The researcher invited change management leader representatives in organizations who have successfully implemented a cloud service. This form was part of a process called “informed consent” to inform you of the study and to provide an understanding of the information gathering procedures before accepting the request to participate. Nancy M Landreville was the doctoral student researcher from Walden University, who conducted the study. Please retain a copy of this form for your records.

Background Information: The purpose of this study was to obtain knowledge on leader initiated change management in adopting cloud services in organizational types. There

include six types of organizations identified. Effective change management strategies sought in cloud adoption provided environmental and LICM positive social change.

Participation requirements: An initial interview provided insight into the strategic approach taken to achieve cloud adoption. The interview occurred at the organization venue chosen by the interviewee. The interview recording occurred from one to two hours at the agreed upon venue. The interview identified the leader tactics used for successful adoption. A follow-up email included a summary of the interview to ensure the information, content, and intent of the transcribed interview provided accurate responses and captured the intent of the participant. A scheduled phone conversation validated the content of the interview and also ensured the capture of the intent of the transcription after the interview. A summary email to each participant to elicit any edits encouraged input for member checking validation. This member checking effort from email and by telephone ensured the accuracy of the summary and transpired no longer than two hours.

Procedures: Two interviews include an initial and a follow-up interview:

- Initial interview of approximately two hours at the organization venue.
- A follow-up interview with no more than two hours via phone to validate email content of transcript summary.

Sample questions: A sample of the questions include the following:

- Which type and model of cloud service did you adopt (i.e.: private, hybrid, or public cloud) with the services of infrastructure as a service (IaaS), software as a service (SaaS), platform as a service (PaaS), or a combination of services.

- Did you adopt cloud technologies to meet the cloud initiative (Cloud First) requirement for government agencies.
- Did you adopt cloud technologies to remain competitive as an organization or to achieve compliance. If a combination of competition and compliance, please explain.

Research Personnel: Please contact either or both of the following individuals with any questions, concerns, or for further clarification: Nancy M Landreville, doctoral student researcher or Dr. Patricia Fusch, doctoral committee chair.

Potential Risk/Discomfort: This study contains no known risks. This interview discusses your strategic initiatives in successful cloud implementation as a volunteer participant and expert in your field. A follow-up interview ensures verification of the information before documenting the findings.

Potential Benefit: The research provided discernment and judgment for standardized procedures for implementing future cloud adoption services. This exploration of standardization alleviates current uncertainty in adoption.

Confidentiality: Disclosure of the findings excluded your name and associated organization. All information remains confidential except an acknowledgment containing your name and organization. If interested in having your name and organization listed as an acknowledgment in the study, a separate release form was submitted to you for signature. Otherwise, it was the understanding of the researcher that the confidentiality of your identity and the identity of your organization was not acknowledged. The information that you provided in the study did not identify your name and the specific

name of your current organization. Any information you provided was stored and secured in a locked safe by the researcher as data collection. Data remains in the locked safe for five years or longer as determined by the University.

Request for Acknowledgment: A separate form for the release of your name and organization asserts an acknowledgment of appreciation in the study. This request was an optional acknowledgment and not a prerequisite for participation in the study. The acknowledgment includes a published thank you in the study. If you did not sign the acknowledgment request, your name and organization are not identified in the acknowledgment. Please retain a copy of the request for an acknowledgment for your records if you choose to release your name and organization.

Right to Withdraw: If you are no longer interested in your volunteer participation in this study which required providing the two interviews; please contact the researcher. If interested in discussing your rights as an interview participant, please contact Dr. Leilani Endicott, serving as the Walden University representative. Her phone number is xxxxx. The Walden University approval number for this study is IRB number 11-17-15-0130598, and this approval expires on November 16, 2016.

Questions: Please contact either or both the doctoral researcher for any questions at xxxxx or the doctoral chair at xxxxxx.

Statement of Consent:

I have read the above information in this consent form and understand the study sufficiently to make a decision on involvement. I understand that I am providing responses to various questions by interview. The study criteria required an initial and a

follow-up interview. The first interview necessitated two hours of time on questions of cloud adoption strategies and success in adopting a cloud service in the organization. The second interview includes a follow up to ensure the information recorded, transcribed, and relayed to the researcher representing responses and intent for member checking. Your signature indicates consent and agreement to the terms and conditions in this form. Please retain a copy of this consent form and any associated release form if applicable.

Printed Name of Participant: _____

Date of consent: _____

Participant Signature: _____

Researcher Signature: _____

Participant Release of Name and Organization for Acknowledgement

Attachment 3

Multiple case study on LICM for Adopting Cloud Services

Purpose: This release form was permission to publish your name and organization as a participant in the study. The release of your name and organization was solely for an acknowledgment purpose as a participant in the study. As a voluntary participant in this study, the release of your name and associated organization was optional.

Release: I understand that the release of my name and organization was not a requirement for participation in the study. I am requesting publication of my name and organization as a participant in the study. The release of my name and organization was a voluntary request for acknowledgment in the published study. I authorize the release of my name and organization as authorized by my signature on this release form. Please retain a copy of this release for your records.

Printed Name of Participant: _____

Printed Organization Name of Participant: _____

Date of consent: _____

Participant Signature: _____

Researcher Signature: _____

IRB: 11-17-15-0130598

Expiration: November 16, 2016

Participant Interview Questions

Attachment 4

Six organizational categories encompass the realm of organization type. This categorization necessitated a representative leader from each of the six organizations to provide perception on cloud computing adoption strategies including the challenges, concerns, difficulties, and resistance to change in providing a cloud service within the respective organization. The perspective from the various representatives provided essential information in studying the leadership change management approaches that aligned with LICM. The categories include the government, industry, military, private, non-profit, and academic organizations. The interview questions sought to obtain the leader perspective in identifying change management strategies. Further inquiry explored the techniques required to obtain support for successful adoption. Two additional participants augmented the findings of the research study as hybrid organizations which included military non-profit organizations and a government academic organization.

Question 1. What was the name of your organization and the category type (i.e.: category government, category industry, category military, category private, category non-profit, or category academic).

Question 2. What was your role in the organization.

Question 3. Did you lead an effort for the integration of a cloud service in your organization.

Question 4. Which type and model of cloud service did you adopt (i.e.: private, hybrid, or public cloud) with the services of infrastructure as a service (IaaS), software as a service (SaaS), platform as a service (PaaS), or a combination of services.

Question 5. Did you adopt cloud technologies to meet the cloud initiative (Cloud First) requirement for government agencies.

Question 6. Did you adopt cloud technologies to remain competitive as an organization or achieve compliance. If a combination of competition and compliance, please explain.

Question 7. Was corporate social responsibility a consideration in implementing a cloud technology to reduce the environmental footprint of hardware and peripheral devices.

Question 8. Did you lead your team in implementing the cloud technology adoption efforts.

Question 9. As a leader in the organization, did you have specific change management practices critical in meeting challenges of cooperation among team members.

Question 10. Which challenge was the most difficult in gaining cooperation among peers and subordinates in the effort to adopt cloud services.

Question 11. Which leader initiated change management approach was most effective in change management strategy to adopt cloud services.

Question 12. What corporate social responsibility standards applied in the organization for reducing hardware and software expenditures.

Question 13. Did corporate social responsibility include data center consolidation.

Question 14. Did the cloud service provide a solution for the management of *big data*.

Question 15. Does a cloud service provide the result of a positive social change in your organization.

Question 16. Do current information assurance policies and procedures suffice in addressing threats and vulnerabilities to ensure secure cloud computing adoption.

Question 17. Which metrics served as a guide in decision-making for technology adoption through change management.

Question 18. Was leader training a valuable resource to facilitate the adoption of cloud service systems.

Question 19. Was a corporate university training of leaders a strategic approach for the adoption of cloud service systems.

Question 20. Which leader change management practices can provide a standardization of cloud service adoption in organizations.

IRB: 11-17-15-0130598
Expiration: November 16, 2016

Appendix C: Interview Summaries and Artifacts

Attachment 1

Organization Type: Government (P1)

Date: December 30, 2015

Venue: Home Office

Question 1. What was the name of your organization and the category type (i.e.: category government, category industry, category military, category private, category non-profit, or category academic). **Summarized response**. Government

Question 2. What was your role in the organization. **Summarized Response.** Former CIO of DoD

Question 3. Did you lead an effort for the integration of a cloud service in your organization. **Summarized Response.** Yes

Question 4. Which type and model of cloud service did you adopt (i.e.: private, hybrid, or public cloud) with the services of infrastructure as a service (IaaS), software as a service (SaaS), platform as a service (PaaS), or a combination of services. **Summarized Response.** Private and Hybrid cloud primarily. DoD has three categories of data (unclassified, classified, and TS). Ensure the vendor community matured to offer the type of cloud needed for this information. Many ongoing thoughts transpired on whether to have a cloud on premise or whether to purchase services off-site.

Question 5. Did you adopt cloud technologies to meet the cloud initiative (Cloud First) requirement for government agencies. **Summarized Response.** This requirement was not the primary reason. The most important choice was whether it was cost effective

and security based. DoD was large, and it was a consideration on which service to use that would be the most beneficial. DoD was involved with FedRAMP[SM] as a governing board. The entire government considered this evaluation of the effort. The business value was the main driver.

Question 6. Did you adopt cloud technologies to remain competitive as an organization or achieve compliance. **Summarized Response.** If a combination of competition and compliance, please explain. Providing services for the agencies was the highest concern. Consolidation of services and security are a priority. Compliance is important and regulations must always align. Agencies have autonomy for setting up information technology. The type of technology was not required to follow a specific pattern. Standardization introduction was recently incorporated. This advancement was recent in discussing cloud services. The initiative was to create a DoD cloud and data centers. The instructions included following the head of DoD and use DoD services.

Question 7. Was corporate social responsibility a consideration in implementing a cloud technology to reduce the environmental footprint of hardware and peripheral devices. **Summarized Response.** Reduce data centers and become the state of the art including environmental reduction. It was a byproduct of the effort to reduce the environmental footprint. Keeping the cloud provider competitive was important to reduce cost and to ensure that loss of cloud provider does not occur.

Question 8. Did you lead your team in implementing the cloud technology adoption efforts. **Summarized Response**. Yes. Staff must understand and follow policies for cloud services.

Question 9. As a leader in the organization, did you have specific change management practices critical in meeting challenges of cooperation among team members. **Summarized Response.** Involve the stakeholders and team members plus attempt to obtain consensus in change management practices. Ensure the creation of the timeline was adaptable to participants involved in the organization. The investment must be understood.

Question 10. Which challenge was the most difficult in gaining cooperation among peers and subordinates in the effort to adopt cloud services. **Summarized Response.** Control and concern over the loss of control include a major challenge.

Question 11. Which leader initiated change management approach was most effective in change management strategy to adopt cloud services. **Summarized Response.** The 4-star General and Secretary of Defense supported change management by spearheading the adoption of cloud services.

Question 12. What corporate social responsibility standards applied in the organization for reducing hardware and software expenditures. **Summarized Response.** Each agency was responsible for reporting expenditures.

Question 13. Did corporate social responsibility include data center consolidation. **Summarized Response.** Yes.

Question 14. Did the cloud service provide a solution for the management of *big data*. **Summarized Response.** The implementation process required management of intelligence information.

Question 15. Does a cloud service provide the result of a positive social change in your organization. **Summarized Response.** DoD protects the nation against all threats and enemies. The cloud service provided a means of reaching this goal.

Question 16. Do current information assurance policies and procedures suffice in addressing threats and vulnerabilities to ensure secure cloud computing adoption. **Summarized Response.** Information assurance was important. Cybersecurity was essential. It was not a singular approach or effort. It required cooperation. Awareness was imperative. Understanding the needs of security was essential. Behavior analytics emerged as an important metric in network security for identifying threats.

Question 17. Which metrics served as a guide in decision-making for technology adoption through change management. **Summarized Response.** Monitoring the network to remain secure. Ensuring the awareness of our assets provided continuous monitoring efforts.

Question 18. Was leader training a valuable resource to facilitate the adoption of cloud service systems. **Summarized Response.** Training was important.

Question 19. Was a corporate university training of leaders a strategic approach for the adoption of cloud service systems. **Summarized Response.** Defining the skills necessary for training in adoption was not isolated.

Question 20. Which leader change management practices can provide a standardization of cloud service adoption in organizations. **Summarized Response.** The application of the approach was important. Cloud was a technology that was chosen based on whether it was necessary to reach your objectives.

Attachment 2

Organization Type: Industry (P2)

Date: December 1, 2015

Venue: Home Office

Question 1. What was the name of your organization and the category type (i.e.: category government, category industry, category military, category private, category non-profit, or category academic). **Summarized Response.** Industry

Question 2. What was your role in the organization. **Summarized Response.** CEO

Question 3. Did you lead an effort for the integration of a cloud service in your organization. **Summarized Response.** Yes

Question 4. Which type and model of cloud service did you adopt (i.e.: private, hybrid, or public cloud) with the services of infrastructure as a service (IaaS), software as a service (SaaS), platform as a service (PaaS), or a combination of services. **Summarized Response.** Government contacts for developing SaaS and internal hosting for a hybrid model. Capacity was a challenge, and our organization refrained from the provision of resources. Bringing the technology in earlier would have helped. Building test sandboxes would have also been helpful. This mindset was the Canadian government. I attended cloud standard NIST working group meetings and assisted in producing guidance which was helpful.

Question 5. Did you adopt cloud technologies to meet the cloud initiative (Cloud First) requirement for government agencies. **Summarized Response.** No. Canada did not

require Cloud First. An incentive was necessary. The Canadian government was very risk adverse and perhaps shortly, a Canadian version of Cloud First may occur.

Question 6. Did you adopt cloud technologies to remain competitive as an organization or achieve compliance. **Summarized Response.** If a combination of competition and compliance, please explain. No compliance requirement.

Question 7. Was corporate social responsibility a consideration in implementing a cloud technology to reduce the environmental footprint of hardware and peripheral devices. **Summarized Response.** Social responsibility was a byproduct of cloud adoption. Reducing hardware and software was an incentive but not the main driver.

Question 8. Did you lead your team in implementing the cloud technology adoption efforts. **Summarized Response.** Yes.

Question 9. As a leader in the organization, did you have specific change management practices critical in meeting challenges of cooperation among team members. **Summarized Response.** Lack of change management occurred, and it was necessary to implement. As a leader, industry found it difficult to use change management.

Question 10. Which challenge was the most difficult in gaining cooperation among peers and subordinates in the effort to adopt cloud services. **Summarized Response.** Cultural resistance was the main issue, especially when supporting the government. Many organizations believed the cloud became a risk to job security. As a leader, identifying job changes was necessary.

Question 11. Which leader initiated change management approach was most effective in change management strategy to adopt cloud services. **Summarized Response.** Creating collaborative opportunities to encourage communication was the main leader initiated change management approach.

Question 12. What corporate social responsibility standards applied in the organization for reducing hardware and software expenditures. **Summarized Response.** Closing data centers and consolidating data centers held importance with financial drivers holding a level of primary concern. Policies protected the data with compliance and staff adhering to the criteria. The cloud onsite was preferable to other alternatives.

Question 13. Did corporate social responsibility include data center consolidation. **Summarized Response.** The challenges in change management, planning, project creation, and the massive effort in meeting expectations caused limited savings.

Question 14. Did the cloud service provide a solution for the management of *big data*. **Summarized Response.** Yes. It was a popular topic. An important consideration in management was *big data* at agencies such as the Geospatial Agency on the amount of the data that required effective management. Data in the field requires management, and it was a new set of problems. Gathering more data and managing this data in a cloud environment for evidence, video, and other media has growing requirements. Network builds include a challenge.

Question 15. Does a cloud service provide the result of a positive social change in your organization. **Summarized Response.** The positive cultural change was occurring slowly in making management of information easier and an increase of efficiency.

Question 16. Do current information assurance policies and procedures suffice in addressing threats and vulnerabilities to ensure secure cloud computing adoption. **Summarized Response.** Yes. There was a strong emphasis on policies and procedures to ensure addressing of these threats and vulnerabilities.

Question 17. Which metrics served as a guide in decision-making for technology adoption through change management. **Summarized Response.** Canada uses the NIST 800-53A and NIST 800-53 rev four plus ISO 27001 and FedRAMP[SM]. The cost of FedRAMP[SM] providers was too high, however; for many cloud systems. Ensuring availability was a high priority, incident response, and low cost of ownership.

Question 18. Was leader training a valuable resource to facilitate the adoption of cloud service systems. **Summarized Response.** Training was required and mandatory. It was a challenge.

Question 19. Was a corporate university training of leaders a strategic approach for the adoption of cloud service systems. **Summarized Response.** Corporate university training of leaders on site was a great idea.

Question 20. Which leader change management practices can provide a standardization of cloud service adoption in organizations. **Summarized Response.** Ensuring the accuracy of an enterprise architecture was used for standardization.

Attachment 3

Organization Type: military (P3)

Date: December 17, 2015

Venue: Home Office

Question 1. What was the name of your organization and the category type (i.e.: category government, category industry, category military, category private, category non-profit, or category academic). **Summarized Response.** Power Project Enablers, Enterprise Information Systems, US Army.

Question 2. What was your role in the organization. **Summarized Response.** Project Manager

Question 3. Did you lead an effort for the integration of a cloud service in your organization. **Summarized Response.** Yes. Acquisition organization for technology

Question 4. Which type and model of cloud service did you adopt (i.e.: private, hybrid, or public cloud) with the services of infrastructure as a service (IaaS), software as a service (SaaS), platform as a service (PaaS), or a combination of services. **Summarized Response.** Private cloud, Public cloud with SaaS, however; most of the work was IaaS and PaaS.

Question 5. Did you adopt cloud technologies to meet the cloud initiative (Cloud First) requirement for government agencies. **Summarized Response.** No, because area processing centers initiated the cloud effort before Cloud First. This initiative was a global effort for the military at various data centers.

Question 6. Did you adopt cloud technologies to remain competitive as an organization or achieve compliance. **Summarized Response.** If a combination of competition and compliance, please explain. Competitive to protect the nation and utilize a strategic initiative. Economics did play a role to some extent. The importance of cyber threats outweighed the cost as the main consideration for protecting the nation and keeping the nation safe.

Question 7. Was corporate social responsibility a consideration in implementing a cloud technology to reduce the environmental footprint of hardware and peripheral devices. **Summarized Response.** Yes. Social responsibility was part of the effort in protecting the environment. The operational advantage was extremely important. Reducing the cost was part of the effort although it was not the main consideration. As a program manager, a trade-off occurs to meet the need and balance the cost.

Question 8. Did you lead your team in implementing the cloud technology adoption efforts. **Summarized Response.** Yes. The organization implemented the services for everyday use for the military operational goals and storage capacity.

Question 9. As a leader in the organization, did you have specific change management practices critical in meeting challenges of cooperation among team members. **Summarized Response.** Centralized approaches occur, and leaders work for strategic initiatives in meeting the objective. Ensure that the problem was clear and identifiable. Leverage early adopters of the cloud for change management to achieve cloud adoption. Brief the group and ensure the support for the effort. Provide thorough cooperation among the team members. At the strategic level, a significant education

effort was important for stakeholder analysis. A game plan was critical to identify and determine the best interaction especially among the operational members. Convey the outcomes to the military staff leaders.

Question 10. Which challenge was the most difficult in gaining cooperation among peers and subordinates in the effort to adopt cloud services. **Summarized Response.** Subordinates cooperated with the leadership. An effort to explain the purpose, mission, and capability of the effort proved to be a necessary element in leader and subordinate relationships. As a procurement organization, describe the necessary steps becomes essential. Also, ensuring problem resolution and status serves to gain the trust of peers in supporting cloud adoption.

Question 11. Which leader initiated change management approach was most effective in change management strategy to adopt cloud services. **Summarized Response.** Effective communication was the most important and understanding the need of the stakeholders. Explain strategic goals to stakeholders that mirror their request for an outcome.

Question 12. What corporate social responsibility standards applied in the organization for reducing hardware and software expenditures. **Summarized Response.** Yes. The procurement organization was a steward for corporate social responsibility which balances capability with the cost for the military. A data center overseas required renovation and in moving forward, the design needed to be cost effective and requirements needed to be defined, for example. Without clear requirements, this project, for example, needed to be canceled. This project aligned with corporate social

responsibility. Sometimes, in data center consolidation, the right thing to do was not to pursue the expenditure to ensure proper corporate social responsibility.

Question 13. Did corporate social responsibility include data center consolidation. **Summarized Response.** Yes. Data center consolidation did occur for some efforts.

Question 14. Did the cloud service provide a solution for the management of *big data*. **Summarized Response.** The problem demonstrated the need for management of *big data.* This resolution occurred with a cloud service. A global satellite data network created a centralized effort for supply management with database management, for example. This effort was a successful undertaking in managing big data.

Question 15. Does a cloud service provide the result of a positive social change in your organization. **Summarized Response.** Yes. The military was an effective and responsible organization for encouraging positive social change.

Question 16. Do current information assurance policies and procedures suffice in addressing threats and vulnerabilities to ensure secure cloud computing adoption. **Summarized Response.** From a military perspective, a consolidation of a system with sensitive data required more protections from excessive visibility to unauthorized personnel. When operating a network, it was important to understand the location of the boundaries to secure the cloud effort. Knowledge of builds required visibility to those responsible for securing the system. It was important to maintain less visibility to others without authorization. The military uses an effective decentralized effort.

Question 17. Which metrics served as a guide in decision-making for technology adoption through change management. **Summarized Response.** An identifiable problem

included the absence of essential metrics. Although costs require inclusion in consideration of adoption; the cost does not drive the effort. Strategic necessity and economic feasibility become main drivers with measurable strategic initiatives.

Question 18. Was leader training a valuable resource to facilitate the adoption of cloud service systems. **Summarized Response.** Yes. Leader training was extremely important to adopt the cloud service. Leaders need to understand the market dynamic. Guidance provided by the government and in the industry assisted in cloud adoption. Understanding the costs involved and available cloud systems was an important consideration. The costs viewpoint identifies the constraints of policy.

Question 19. Was a corporate university training of leaders a strategic approach for the adoption of cloud service systems. **Summarized Response.** Training coverage spans a wide area in identifying training needs.

Question 20. Which leader change management practices can provide a standardization of cloud service adoption in organizations. **Summarized Response.** Looking at the problem, identifying the metrics, understanding the clientele, and ensuring proper communication was the goal for a standardized approach.

Attachment 4

Organization Type: Private (P4)

Date: December 1, 2015

Venue: Home Office

Question 1. What was the name of your organization and the category type (i.e.: category government, category industry, category military, category private, category non-profit, or category academic). **Summarized Response.** Private, Small Business

Question 2. What was your role in the organization. **Summarized Response.** CEO and CIO of a small business.

Question 3. Did you lead an effort for the integration of a cloud service in your organization. **Summarized Response.** Yes. I led an effort for the integration of cloud services.

Question 4. Which type and model of cloud service did you adopt (i.e.: private, hybrid, or public cloud) with the services of infrastructure as a service (IaaS), software as a service (SaaS), platform as a service (PaaS), or a combination of services. **Summarized Response.** Leveraged Amazon web services and paid for the usage. The initiative was IaaS for the service.

Question 5. Did you adopt cloud technologies to meet the cloud initiative (Cloud First) requirement for government agencies? **Summarized Response.** No. It was to reduce costs and improve performance. It was a beta test from Amazon web services. The cost from Amazon was reasonable. Server removal from the hosting platform required the use of the infrastructure provided by Amazon.

Question 6. Did you adopt cloud technologies to remain competitive as an organization or achieve compliance. **Summarized Response.** If a combination of competition and compliance, please explain. Yes. The web services and Google application engine increase capability with scalability functionality which increases competitive advantage. This deployment of the cloud provided greater customer service.

Question 7. Was corporate social responsibility a consideration in implementing a cloud technology to reduce the environmental footprint of hardware and peripheral devices. **Summarized Response.** In adopting the cloud, we include using other services provided by Amazon which resulted in environmental footprint reduction.

Question 8. Did you lead your team in implementing the cloud technology adoption efforts. **Summarized Response.** Yes. I was the lead in implementing the effort and conferred with my organizational partners.

Question 9. As a leader in the organization, did you have specific change management practices critical in meeting challenges of cooperation among team members. **Summarized Response.** Yes. There was a small team.

Question 10. Which challenge was the most difficult in gaining cooperation among peers and subordinates in the effort to adopt cloud services. **Summarized Response.** There was a lack of understanding among peers and subordinates in the effort to adopt cloud services.

Question 11. Which leader initiated change management approach was most effective in change management strategy to adopt cloud service **Summarized Response.** Decision-making was important in the change management approach. Following the

replication, the effort was also important to ensure proper functionality. Making this seamless to the stakeholder customer was effective. It became imperative to ensure functionality occurred properly, installation of correct settings transpired, regression testing effectiveness took place, and optimal buy-in from stakeholders supported the effort.

Question 12. What corporate social responsibility standards applied in the organization for reducing hardware and software expenditures. **Summarized Response.** Amazon and Google provide a standard for optimizing the cloud service and charge for the time used. Corporate social responsibility applied to the reduction of expenditures while keeping the costs at a per use rate. Ensure that the client is not concerned with the change of provider or the provider no longer provides the service. This service was an important consideration for the organization on the ability to seamlessly move from the provider. Also, encrypting the data was imperative.

Question 13. Did corporate social responsibility include data center consolidation. **Summarized Response.** A favorable impact occurred with the consolidation of data centers.

Question 14. Did the cloud service provide a solution for the management of *big data*. **Summarized Response.** Storage for *big data* was available including back up on the drives for the virtual servers, data center, and replication of information for the base files. Google data storage was ideal for *big data*.

Question 15. Does a cloud service provide the result of a positive social change in your organization. **Summarized Response.** Minimize expenditures in information

technology result in a positive social change by taking advantage of a service that was being provided by others. This advantage provided customers with a positive social change in the expenditure structure for clients using the technology.

Question 16. Do current information assurance policies and procedures suffice in addressing threats and vulnerabilities to ensure secure cloud computing adoption. **Summarized Response.** It was important to create firewalls, ensure the creation of security policies, and establish procedures to protect the environment. It became imperative to block malfeasance in IP addresses and to screen these addresses from malware. Although scanning is beneficial; scanning efforts provide insufficient protection from intrusion.

Question 17. Which metrics served as a guide in decision-making for technology adoption through change management. **Summarized Response.** Scanning results include a means of testing adoption success for security. IP address identification and whitelisting include a means of ensuring addresses pass for clearance. Cost savings guided the decision on determining whether this technology was beneficial. Effective risk management was an important measure in whether to accept, mitigate, or transfer the risk.

Question 18. Was leader training a valuable resource to facilitate the adoption of cloud service systems. **Summarized Response.** Leader training was a valuable resource in facilitating cloud adoption.

Question 19. Was a corporate university training of leaders a strategic approach for the adoption of cloud service systems. **Summarized Response.** This environment may be an effective strategic approach.

Question 20. Which leader change management practices can provide a standardization of cloud service adoption in organizations. **Summarized Response.** Standardization should not circumvent customization in organizations. Some entities have multiple vulnerabilities to consider that may not apply to a standardized approach. The standardized approach may not always work well for all organizations with so many unknowns. Defense in depth was important as was ensuring that there was no single point of failure in standardization.

Attachment 5

Organization Type: Non-Profit (P5)

Additional: Non-Profit Para-military Organization

December 19, 2015

Venue: Home Office

Question 1. What was the name of your organization and the category type (i.e.: category government, category industry, category military, category private, category non-profit, or category academic). **Summarized Response.** Air Force Civil Air Patrol Auxiliary

Question 2. What was your role in the organization. **Summarized Response.** Major General, Commander

Question 3. Did you lead an effort for the integration of a cloud service in your organization. **Summarized Response.** Yes. An integrated effort for a cloud service occurred in our effort.

Question 4. Which type and model of cloud service did you adopt (i.e.: private, hybrid, or public cloud) with the services of infrastructure as a service (IaaS), software as a service (SaaS), platform as a service (PaaS), or a combination of services. **Summarized Response.** Private and public clouds with various services such as SaaS (.mil), IaaS, and databases with PaaS.

Question 5. Did you adopt cloud technologies to meet the cloud initiative (Cloud First) requirement for government agencies. **Summarized Response.** Our efforts pre-dated the Cloud First initiative.

Question 6. Did you adopt cloud technologies to remain competitive as an organization or achieve compliance. **Summarized Response.** If a combination of competition and compliance, please explain. There include competitive and compliance requirements although the nature of the organization was to serve the public. The organization was a volunteer to assist in search and rescue, and the focus of cloud technologies was to obtain efficient practices. The technology assisted in being able to provide services in a leader-efficient methodology. Aerial imagery, for example, was enhanced with cloud technologies.

Question 7. Was corporate social responsibility a consideration in implementing a cloud technology to reduce the environmental footprint of hardware and peripheral devices. **Summarized Response.** The organization is a champion for social change. Cloud technologies provide an opportunity for reduction of costs. This organization is diversity driven and provides opportunities for all individuals.

Question 8. Did you lead your team in implementing the cloud technology adoption efforts. **Summarized Response.** Yes. I was a leader in implementing cloud technologies assisting the efforts of our mission.

Question 9. As a leader in the organization, did you have specific change management practices critical in meeting challenges of cooperation among team members. **Summarized Response.** There was a diverse staff that worked well together by mutual respect in meeting the mission. Transparency and inclusiveness include effective change management. Creating a vision was also an essential leader change

management practice. Identifying the importance of financial responsibility and meeting the mission, was a top-down approach reflecting leader-subordinate relationships.

Question 10. Which challenge was the most difficult in gaining cooperation among peers and subordinates in the effort to adopt cloud services. **Summarized Response.** Demonstrating good leadership to subordinates and encouraging leadership in others works best for gaining cooperation and establishing goal accomplishment among others. Acquired scholarships created an incentive to say 'thank you' for the hard work.

Question 11. Which leader initiated change management approach was most effective in change management strategy to adopt cloud services. **Summarized Response.** An action plan was essential to meet change management goals. Planning was an effective mechanism for change management. Strategic incorporation contributed to the success in completing the plans. This planning effort and skill set identified an action plan chart which was available as an artifact.

Question 12. What corporate social responsibility standard applied in the organization for reducing hardware and software expenditures. **Summarized Response.** Yes. Corporate social responsibility was the goal in being able to meet the mission efficiently using the technology and reducing hardware and software was a byproduct benefit. The cloud also allowed for transparency which was an excellent corporate social benefit. This benefit meant reducing costs and being a socially responsible organization.

Question 13. Did corporate social responsibility include data center consolidation. **Summarized Response.** Interconnections and internet locations became an issue more than the data centers which housed the information. The consolidation of

data centers emerged as an effort of virtualization of software residing on fewer servers plus social responsibility became imperative and resulted from the success of the effort to consolidate the data centers.

Question 14. Did the cloud service provide a solution for the management of *big data*. **Summarized Response.** Yes. Financial manageability and data availability increased as a result of cloud service adoption and subsequent capability of cloud services. Legacy systems changed and new adoptive standards for disaster recovery emerged. This growth in the need for storage enhanced the need for the management of *big data*. The cloud service provided a means of managing aerial imaging thus managing *big data*.

Question 15. Does a cloud service provide the result of a positive social change in your organization. **Summarized Response.** The cloud service provided positive social change by facilitating a means of rapid reporting to the White House and the military to determine the extent of remediation for a catastrophic event. The on-demand release of the information to appropriate personnel in real time was essential and capable thus contributing to positive social change. Volunteers participated in this effort and wrote the software on a voluntary basis to achieve this impact of positive social change. Thousands of cadets became volunteers to assist in this effort to learn to be part of this non-profit initiative in identifying events and responding to emergencies.

Question 16. Do current information assurance policies and procedures suffice in addressing threats and vulnerabilities to ensure secure cloud computing adoption. **Summarized Response.** Leadership emerged as an important area to ensure sufficiency

in policy and procedure development. The current government regulations serve as an excellent guide to provide assurance. Quality assurance was extremely important, and consistency in procedures was a high priority. Specifications to meet criteria require guidance. Redundancy in procedures was important to provide consistency. There was a need to be able to understand how to follow these policies and procedures.

Question 17. Which metrics served as a guide in decision-making for technology adoption through change management. **Summarized Response.** Financial impact and logistical reporting with scheduling requirements may lead to a successful outcome. All of the FISMA, FITRA, NIST, and other metrics emerged as part of the requirements that aligned with guiding adoption.

Question 18. Was leader training a valuable resource to facilitate the adoption of cloud service systems. **Summarized Response.** Disruptive change management was important for leader training. The focus needs to be on the technology and its advantage to the organization. The individual assets in systems serve as an integral part of the training effort. Encourage successful and dependable leadership by gaining trust from subordinates and respect from peers.

Question 19. Was a corporate university training of leaders a strategic approach for the adoption of cloud service systems. **Summarized Response.** Yes. A corporate university setting was an ideal scenario for training.

Question 20. Which leader change management practices can provide a standardization of cloud service adoption in organizations. **Summarized Response.** Standardization of cloud systems was effective. The framework requires periodic

adjustments to remain current. A standardized approach provides a means of adoption and needs to include a checklist of attainable items.

Attachment 6

Organization Type: Academic (P6)

Additional: Speaker/Educator on FedRAMP[SM] for the Cloud; and Government CTO

Date: December 21, 2015

Venue: Home Office

Question 1. What was the name of your organization and the category type (i.e.: category government, category industry, category military, category private, category non-profit, or category academic). **Summarized Response.** Speaker and educator at various venues for educating the public about cloud computing and the use of FedRAMP[SM] for authorizing systems and current CTO for government agency

Question 2. What was your role in the organization. **Summarized Response.** Chief Technology Officer and subject matter expert speaker on Cloud adoption and FedRAMP[SM]

Question 3. Did you lead an effort for the integration of a cloud service in your organization. **Summarized Response.** In the middle of leading an effort at the current time for the Federal Transportation Company. I have an extensive background in FedRAMP[SM] and have extensive experience in the effort of risk assessment procedures. The organization provided authorization for cloud systems.

Question 4. Which type and model of cloud service did you adopt (i.e.: private, hybrid, or public cloud) with the services of infrastructure as a service (IaaS), software as a service (SaaS), platform as a service (PaaS), or a combination of services. **Summarized Response.** Initially, my experience with cloud involved various attempts at services for

IaaS and PaaS approaches. I have been working on hybrid service architecture for data centers.

Question 5. Did you adopt cloud technologies to meet the cloud initiative (Cloud First) requirement for government agencies. **Summarized Response.** Initially, the cloud was being introduced in various ways without the Cloud First as the initial guidance.

Question 6. Did you adopt cloud technologies to remain competitive as an organization or achieve compliance. **Summarized Response.** If a combination of competition and compliance, please explain. Competitive advantage was not the rationale although compliance did become a concern with the addition of requirements from the federal government for security in the cloud.

Question 7. Was corporate social responsibility a consideration in implementing a cloud technology to reduce the environmental footprint of hardware and peripheral devices. **Summarized Response.** It was important to be good stewards with social responsibility in implementing cloud technologies. Although environmental considerations become a concern for adoption decision-making; the main focus remained on functionality, feasibility, and avoidance of contributing to the detriment of the environment.

Question 8. Did you lead your team in implementing the cloud technology adoption efforts. **Summarized Response.** There was quite a bit of discussion on cloud adoption, however; the planning was still ongoing and as a leader, I am spearheading this effort within the organization.

Question 9. As a leader in the organization, did you have specific change management practices critical in meeting challenges of cooperation among team members. **Summarized Response.** Initially, there was a demonstrated need for change management practices. Everyone seemed to be making their decisions without leadership. I brought leadership to the effort and am gathering information on the current status. Review of purchases and meeting requirements enhances acquisition responsibility to ensure proper use of funding. In change management, the practices apply to engage leaders in configuration management in supporting cloud adoption.

Question 10. Which challenge was the most difficult in gaining cooperation among peers and subordinates in the effort to adopt cloud services. **Summarized Response.** It was a challenge to have offices report on the accomplished work, the status of the effort from subordinates, and a reporting mechanism to provide updates on success. Planning on the future of the data center, requirements for the future cloud efforts, and an effort to identify costs and purchases was a challenge.

Question 11. Which leader initiated change management approach was most effective in change management strategy to adopt cloud services. **Summarized Response.** The most effective approach was leading a change management effort in uncovering the needs of the organization to be redesigned with an architecture that will include cloud and identify the requirements, plan for the outcome, and set aside funding measures for costs. The jobs needed for the effort need to be identified. Planning was also very important in establishing the groundwork by identifying effective strategic management.

Question 12. What corporate social responsibility standard applied in the organization for reducing hardware and software expenditures. **Summarized Response.** Social responsibility was an effort and byproduct of the effort with the cloud.

Question 13. Did corporate social responsibility include data center consolidation. **Summarized Response.** The data center consolidation effort was to reduce the environmental footprint by reducing the cost and expenditures occurring with network growth. This involved being good stewards with the funding and being responsible with government funding and our environment by using more green technologies.

Question 14. Did the cloud service provide a solution for the management of *big data*. **Summarized Response**. There include tremendous amounts of data to be managed. Cloud services include a means of managing the data, however; the solution was not apparent. *Big data* was an issue that was being worked out with various vendors to determine management strategies.

Question 15. Does a cloud service provide the result of a positive social change in your organization. **Summarized Response.** For a long term solution, cloud services do contribute to the reduction of the environmental footprint. This services provided positive social change for stewards of organizations.

Question 16. Do current information assurance policies and procedures suffice in addressing threats and vulnerabilities to ensure secure cloud computing adoption. **Summarized Response.** Yes. After working with FedRAMP^{SM} for several years, the inclusion of vendor assessments in identifying requirements remains paramount in ensuring security for these systems. The policies and procedures provide sufficient

information and guidance to address the threats and vulnerabilities and to ensure secure cloud adoption. It is important to address a cultural change within the organization. The depth of the practitioner's importance and the expertise of the security professional was the most important. The industries that have prepared cloud services for use by agencies; and, have met FedRAMP[SM] criteria, engage in very good practices in delivering the product! Management successfully secured these cloud systems based on the stringent criteria.

Question 17. Which metrics served as a guide in decision-making for technology adoption through change management. **Summarized Response.** Creating a road map to plan for the cloud service was the most important metric. Current system requirements aligned with measurement resources. Common criteria followed as a standard metric.

Question 18. Was leader training a valuable resource to facilitate the adoption of cloud service systems. **Summarized Response.** Leader training has not been a priority although it was important for the implementation of training. Training would be beneficial for key stakeholders and leaders to save cost.

Question 19. Was a corporate university training of leaders a strategic approach for the adoption of cloud service systems. **Summarized Response.** I don't know. I think it would be dependent on the level of leadership. It depends on the type of training. CISOs need to be trained in a corporate university, however.

Question 20. Which leader change management practices can provide a standardization of cloud service adoption in organizations. **Summarized Response.** FedRAMP[SM] was good for understanding security and providing the necessary guidance

to evaluate cloud services. Learning all the implications of technology seemed to prevent change management practices from occurring due to the concerns of impacts in security and privacy repercussions.

Advice: Planning for an exit strategy and thinking thru on what was needed.

Attachment 7

Organization Type: Non-Profit (P7)

Date: December 6, 2015

Venue: Home Office

Question 1. What was the name of your organization and the category type (i.e.: category government, category industry, category military, category private, category non-profit, or category academic). **Summarized Response.** Non-profit

Question 2. What was your role in the organization. **Summarized Response.** Member of the Board of Advisors and Director of 360 Cloud

Question 3. Did you lead an effort for the integration of a cloud service in your organization. **Summarized Response.** Led the effort for a Veteran non-profit organization entitled the cloud 360 effort.

Question 4. Which type and model of cloud service did you adopt (i.e.: private, hybrid, or public cloud) with the services of infrastructure as a service (IaaS), software as a service (SaaS), platform as a service (PaaS), or a combination of services **Summarized Response**. Public cloud for delivery of veteran transitions involving SaaS.

Question 5. Did you adopt cloud technologies to meet the cloud initiative (Cloud First) requirement for government agencies. **Summarized Response.** Cloud First was not a factor.

Question 6. Did you adopt cloud technologies to remain competitive as an organization or achieve compliance. **Summarized Response.** If a combination of

competition and compliance, please explain. Cloud was adopted to provide services at a lowered cost not competitive or because of compliance.

Question 7. Was corporate social responsibility a consideration in implementing a cloud technology to reduce the environmental footprint of hardware and peripheral devices. **Summarized Response.** The concern was saving money as a non-profit and providing an affordable service model.

Question 8. Did you lead your team in implementing the cloud technology adoption efforts. **Summarized Response.** Yes, I was the Director of the 360 cloud effort for transitioning veterans.

Question 9. As a leader in the organization, did you have specific change management practices critical in meeting challenges of cooperation among team members. **Summarized Response.** Dedication and inspiring persistence in the effort to proceed with the effort.

Question 10. Which challenge was the most difficult in gaining cooperation among peers and subordinates in the effort to adopt cloud services. **Summarized Response.** There was a constant need in obtaining funds for budgeting the effort. Donor petitions established a requirement to meet the challenges. Educating the volunteers on the cloud was a challenge. Educating peers and leadership was a challenge on cloud technologies. The time to train was also difficult to determine the amount of effort required for the training.

Question 11. Which leader initiated change management approach was most effective in change management strategy to adopt cloud services. **Summarized**

Response. Developing a new business model for the 360 cloud effort to deliver services to the veterans that included funding from donations. Training veterans on cloud technology to obtain jobs assisted in being able to obtain funds. Interested organizations would provide funding to receive trained veterans from the 360 program. As a leader, it was important to place yourself in the shoes of the other person. Empathy was very important.

Question 12. What corporate social responsibility standards applied in the organization for reducing hardware and software expenditures. **Summarized Response.** Implementing cloud as a solution for operations and training. This solution resulted in the result of reducing expenditures. Virtual classes delivered for the veterans resulted in the saving of expenses in hardware and software expenditures.

Question 13. Did corporate social responsibility include data center consolidation. **Summarized Response.** Data centers developed for operations and optimal use of equipment resulted in reduced expenditures on extended data centers.

Question 14. Did the cloud service provide a solution for the management of *big data*. **Summarized Response.** Large amounts of data did not cause the main issue for the organization. The cloud service provided optimal solutions for managing operations. Asynchronous communication was effective, and data was manageable and remotely delivered.

Question 15. Does a cloud service provide the result of a positive social change in your organization. **Summarized Response.** The cloud service was efficient for operations. The cloud service also provided positive social change. The organization

trained the veteran clients in cloud technologies for supporting organizations that donated funds for the training.

Question 16. Do current information assurance policies and procedures suffice in addressing threats and vulnerabilities to ensure secure cloud computing adoption. **Summarized Response.** Policies and procedures became a priority and a necessity but will always need development and updates. The educational model was not an issue, and the cloud service provider protected the personally identifiable information of the registration information. Also, credit card information was contracted out to local vendors.

Question 17. Which metrics served as a guide in decision-making for technology adoption through change management **Summarized Response**. Following the design of the cloud and identifying the needs of organizations in obtaining skilled cloud professionals. An in-house training business model for veterans was a measurable metric. Functionality, operations, and funding include secure metrics. Bandwidth was also a monitored metric due to living virtual delivery, and this needed to be monitored for the cost to ensure savings.

Question 18. Was leader training a valuable resource to facilitate the adoption of cloud service systems. **Summarized Response.** Leader training was a valuable resource. For example, the training effort and business model in my organization included providing cloud technology proficient veterans for organizations. A finder fee assessment provided income from the receiving organization for cloud-trained veterans. These organizations provided donations to the non-profit 360 program.

Question 19. Was a corporate university training of leaders a strategic approach for the adoption of cloud service systems. **Summarized Response.** Yes. Leaders need training on the cloud services to understand the requirements and the level of involvement in design.

Question 20. Which leader change management practices can provide a standardization of cloud service adoption in organizations. **Summarized Response.** Understanding the definition of cloud across leaders was important. Cloud drives change in an organization by the nature of its technology.

Advice: The information technology professional was instrumental in developing architecture, writing software, building hardware, connecting servers, and completing a network. In transitioning a cloud, this paradigm changes, and the professional becomes a leader in cloud. A team approach that works in concert was necessary for success. A leader in the cloud must work vertically and have knowledge across all these technology boundaries. Cloud service management was important to realize the change for successful adoption. Viewpoints need changing in understanding differences in cloud technology adoption. As a leader, take the horizontal practices and cross train to deliver in a vertical approach with the team.

Attachment 8

Organization Type: Academic (P8)

Date: December 2, 2015

Venue: Home Office

Question 1. What was the name of your organization and the category type (i.e.: category government, category industry, category military, category private, category non-profit, or category academic). **Summarized Response.** Academic, Technology University

Question 2. What was your role in the organization. **Summarized Response.** Professor

Question 3. Did you lead an effort for the integration of a cloud service in your organization. **Summarized Response.** Yes. I was instrumental in providing the use of cloud in the organization. I am responsible for cybersecurity.

Question 4. Which type and model of cloud service did you adopt (i.e.: private, hybrid, or public cloud) with the services of infrastructure as a service (IaaS), software as a service (SaaS), platform as a service (PaaS), or a combination of services. **Summarized Response.** The university adopted the use of a public cloud using Amazon services. This deployment included a combination of services with infrastructure, software, and platform capabilities.

Question 5. Did you adopt cloud technologies to meet the cloud initiative (Cloud First) requirement for government agencies. **Summarized Response.** Cloud adoption

requirements occurred as a result of functional improvements and not Cloud First. Cloud First did not impact cloud adoption.

Question 6. Did you adopt cloud technologies to remain competitive as an organization or achieve compliance. **Summarized Response.** If a combination of competition and compliance, please explain. The focus was not on compliance as much as it was on competitiveness. To compete as a university, we needed to be current, relevant, and competitive.

Question 7. Was corporate social responsibility a consideration in implementing a cloud technology to reduce the environmental footprint of hardware and peripheral devices. **Summarized Response.** Yes. Our organization expressed interest in saving costs and reducing the purchase of hardware.

Question 8. Did you lead your team in implementing the cloud technology adoption efforts. **Summarized Response.** Yes. I am a leader and integrator at the University.

Question 9. As a leader in the organization, did you have specific change management practices critical in meeting challenges of cooperation among team members. **Summarized Response.** Yes. It was my responsibility to coordinate efforts with the appropriate teams and organizational divisions within the university.

Question 10. Which challenge was the most difficult in gaining cooperation among peers and subordinates in the effort to adopt cloud services. **Summarized Response.** Leading change management and providing the service. Change management was a difficult process. Organizations required procedure development. This absence of procedures makes it a challenge.

Question 11. Which leader initiated change management approach was most effective in change management strategy to adopt cloud services. **Summarized Response.** The cooperative effort with the information technology division in exchanging information provided the knowledge needed to develop the architecture. Change management became a technical undertaking. I led the effort as a needed and required change.

Question 12. What corporate social responsibility standards applied in the organization for reducing hardware and software expenditures. **Summarized Response.** In academics, the ADA requirements for access to all students regardless of their disabilities was provided. The goal to achieve superior excellence protocols became important for the university to strive and achieve social responsibility initiatives.

Question 13. Did corporate social responsibility include data center consolidation. **Summarized Response.** Yes. This effort was necessary to save funds and spend resources on a more effective technology that reduced data center consumption.

Question 14. Did the cloud service provide a solution for the management of *big data*. **Summarized Response.** Yes. The cloud provided resources for managing the voluminous data within the university and in allocating storage capabilities.

Question 15. Does a cloud service provide the result of a positive social change in your organization. **Summarized Response.** Yes. The university was efficient in course development. Various responsibilities in delivering ideal courses to students improved over time by prioritizing students concerns. This approach included positive social change.

Question 16. Do current information assurance policies and procedures suffice in addressing threats and vulnerabilities to ensure secure cloud computing adoption. **Summarized Response**. This assessment continues with an evaluation process. The university follows procedures to secure the cloud according to NIST standards. I participate in the working groups as a volunteer.

Question 17. Which metrics served as a guide in decision-making for technology adoption through change management. **Summarized Response.** The systems development life cycle and ITIL procedures plus NIST standards serve as viable metrics.

Question 18. Was leader training a valuable resource to facilitate the adoption of cloud service systems. **Summarized Response.** Yes. Leader training was necessary for success.

Question 19. Was a corporate university training of leaders a strategic approach for the adoption of cloud service systems. **Summarized Response.** Yes. An ideal setting must be established to deliver strategic training needs for cloud adoption.

Question 20. Which leader change management practices can provide a standardization of cloud service adoption in organizations. **Summarized Response.** Assist in corporate governance and consolidation of efforts to provide a better use of cybersecurity.

Advice: It is important to consolidate and share information.

Attachment 9

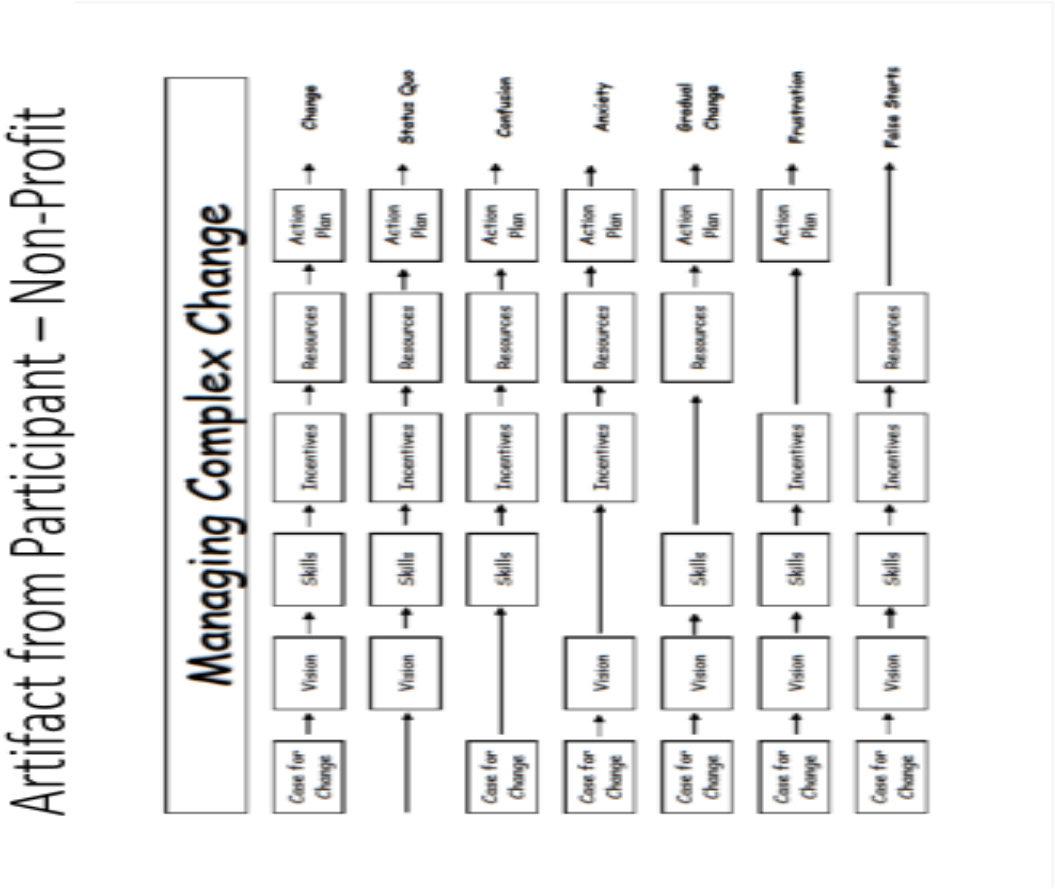
Organization Type: Non-Profit (P5)

Additional: Para-military

Contribution: Informational Artifact on Change Management

Date: December 19, 2015

Venue: Home Office



Appendix D: LICM Model Recommendation for Future Research

As discussed in Chapter 5, a recommendation for LICM practitioners to develop the cloud service based on training in a corporate university setting provides a model for training leadership in leading change. An agile project management plan and standardized approach that follows current regulatory guidance provide the ability to standardize an approach across organizational boundaries. This approach is essential for developing a standardized initiative in cloud adoption. Cloud regulations, standards, and guidance are continually under development guided by various organizations in attempting to provide direction for cloud providers, integrators, assessors, and users of cloud services. The focus on cloud adoption remains in a vacuum with the emphasis on chasing security and privacy controls to fix, remediate, assign, and pass compliance. The design appears to be the simpler adoption effort. Standardization must extend beyond the

premise of security and privacy control compliance as the answer to the cloud adoption challenge.

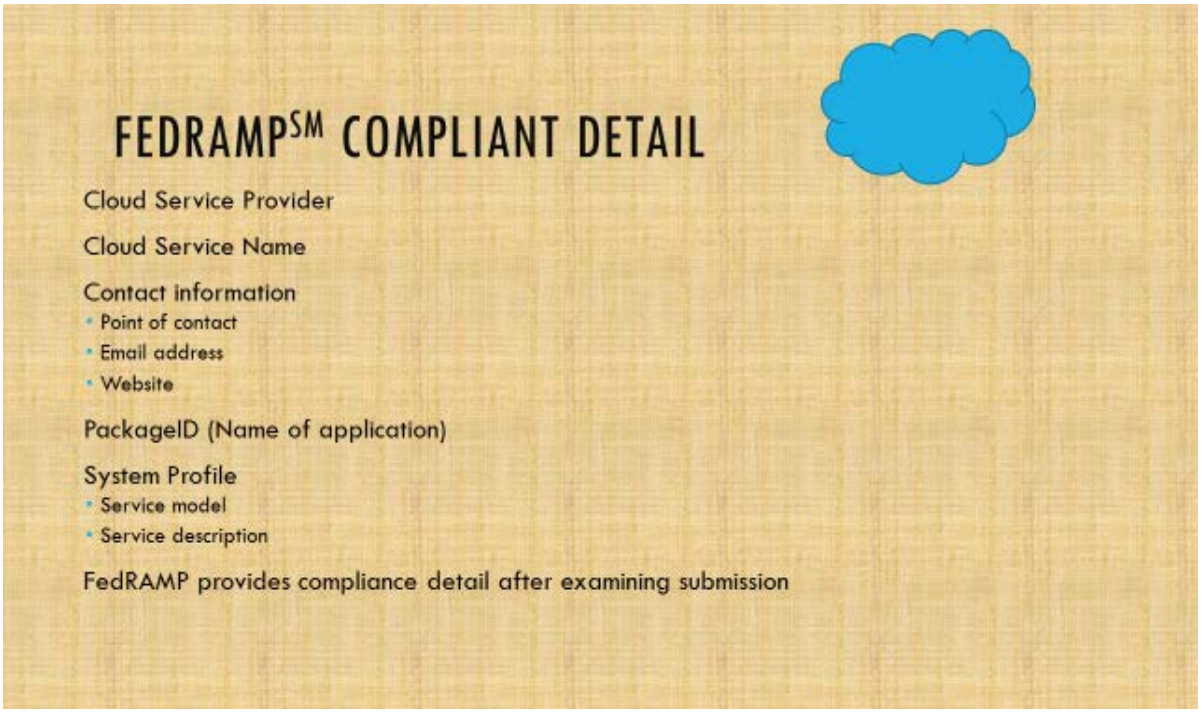
Cooperative research and participation with various organizations support cloud initiatives for future research such as NIST, FedRAMP[SM], CSA, and other regulatory authorities. For example, CSA provides a security control matrix to assist cloud integrators at http://www.cloudsecurityalliance.org. CSA's copyright provides permissions for the use of the Cloud Controls Matrix without modification, redistribution, trademark removal or other replication that would imply another source.

Agile project management provides a multitude of beneficial approaches to project management efforts appropriate for a cloud environment. The development of a roadmap includes the establishment of a vision by the leader. The leader establishes a roadmap plan to tackle the challenge of adopting a cloud service. LICM provisions the interaction of leader-member exchange in invoking a relationship of engagement with subordinates' efforts. The corporate university setting for each organization type focused on the mission with the vision identified by the leader; establishes the plan based on tasks to reach the goal.

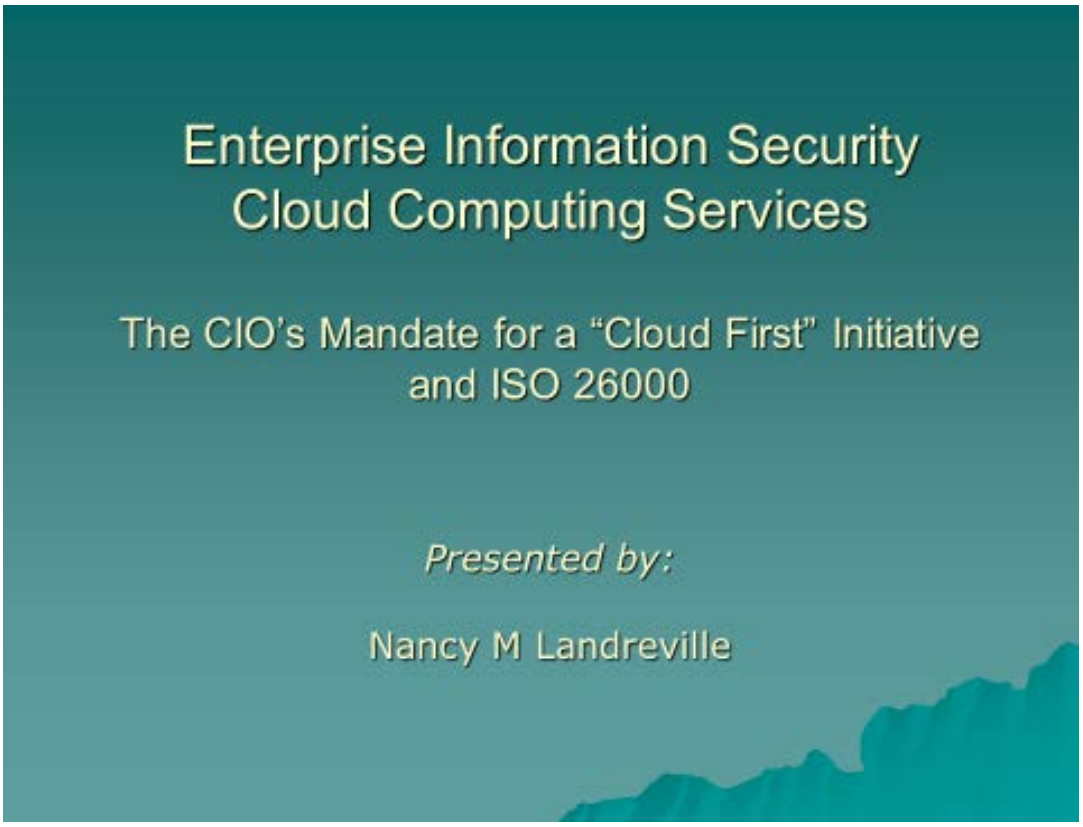
Identifiable challenges require assignment of timeframes to meet challenges. The challenges associated with each obstacle require schedules to meet the goal of reaching a milestone. Managing tasks by agile project management permit continuity of task accomplishment. LICM facilitates the achievement of goals based on challenge resolution as identified by applying the LICM framework and concepts identified in this study.

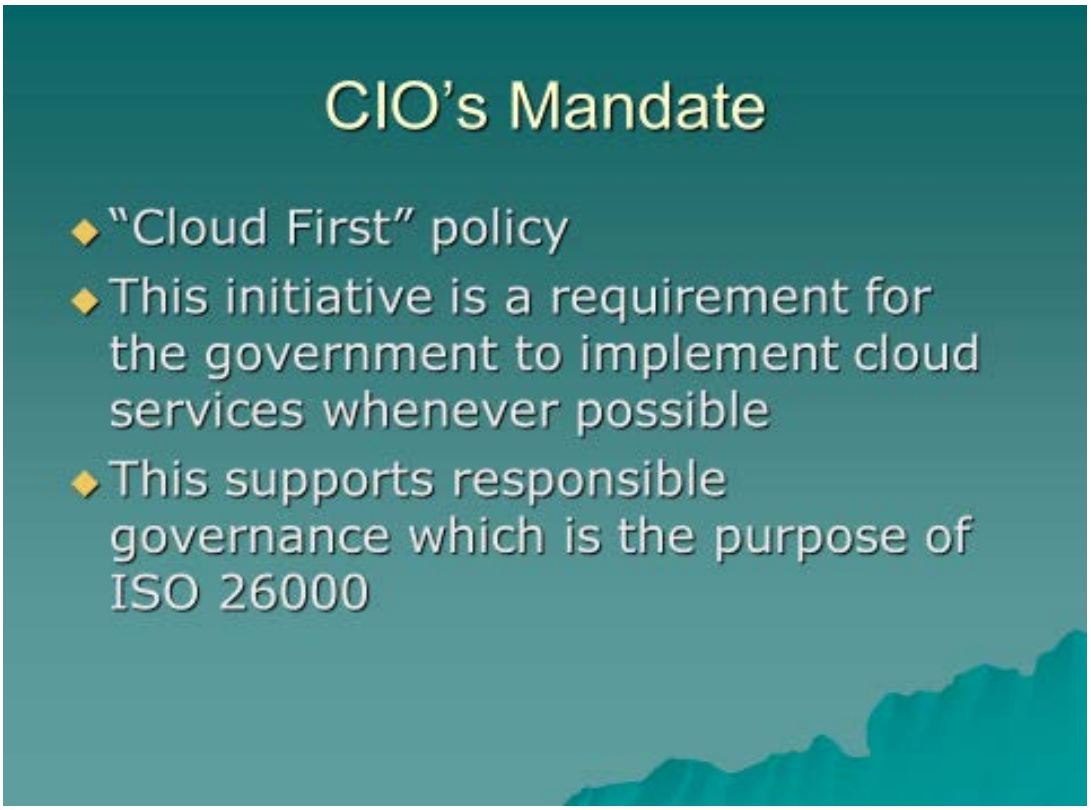
Intentional change and appreciative inquiry combine to enforce the change from identification of challenges in completing the goal. LICM combines with the training initiative to introduce the leader to instruct the leader on leading change for cloud adoption. This recommendation requires further research. Appendix D includes a recommended course of action based on the research in this study.

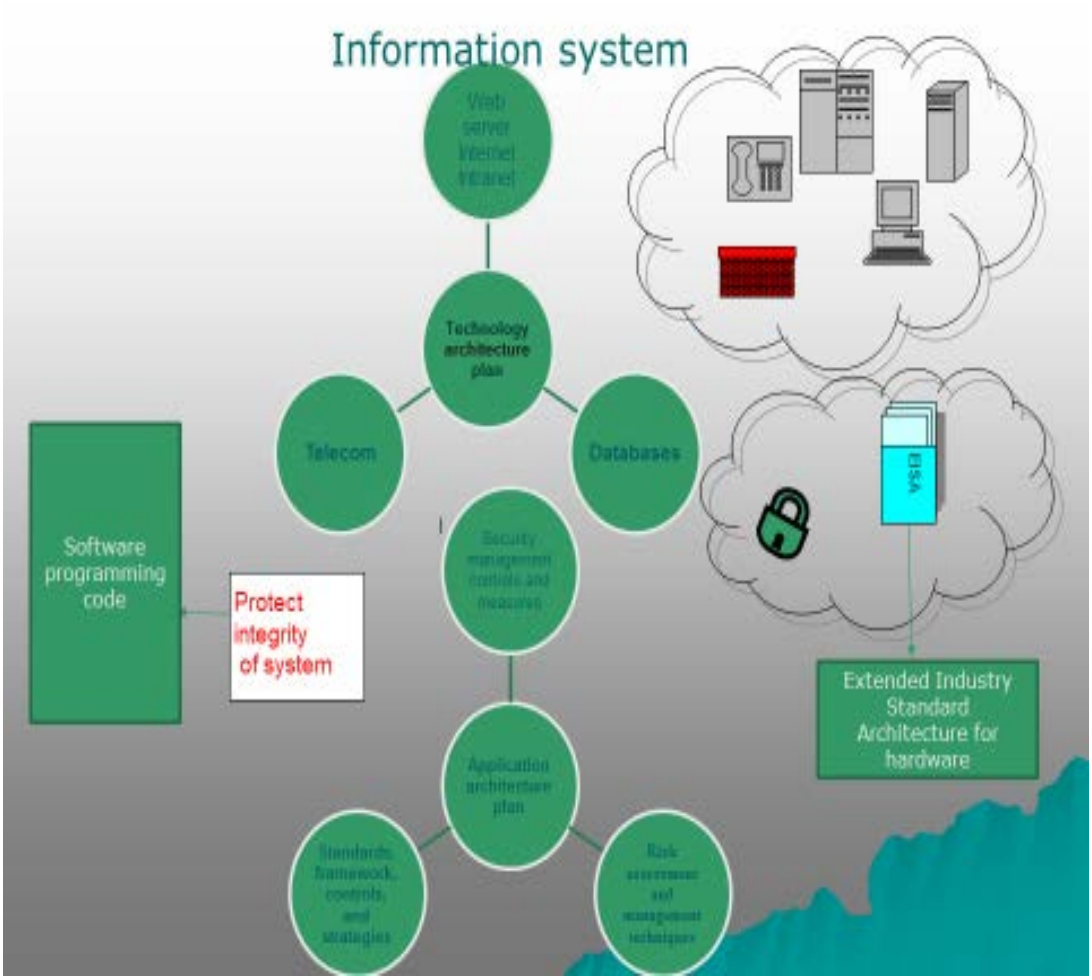
Appendix E: FedRAMP[SM] and Cloud First

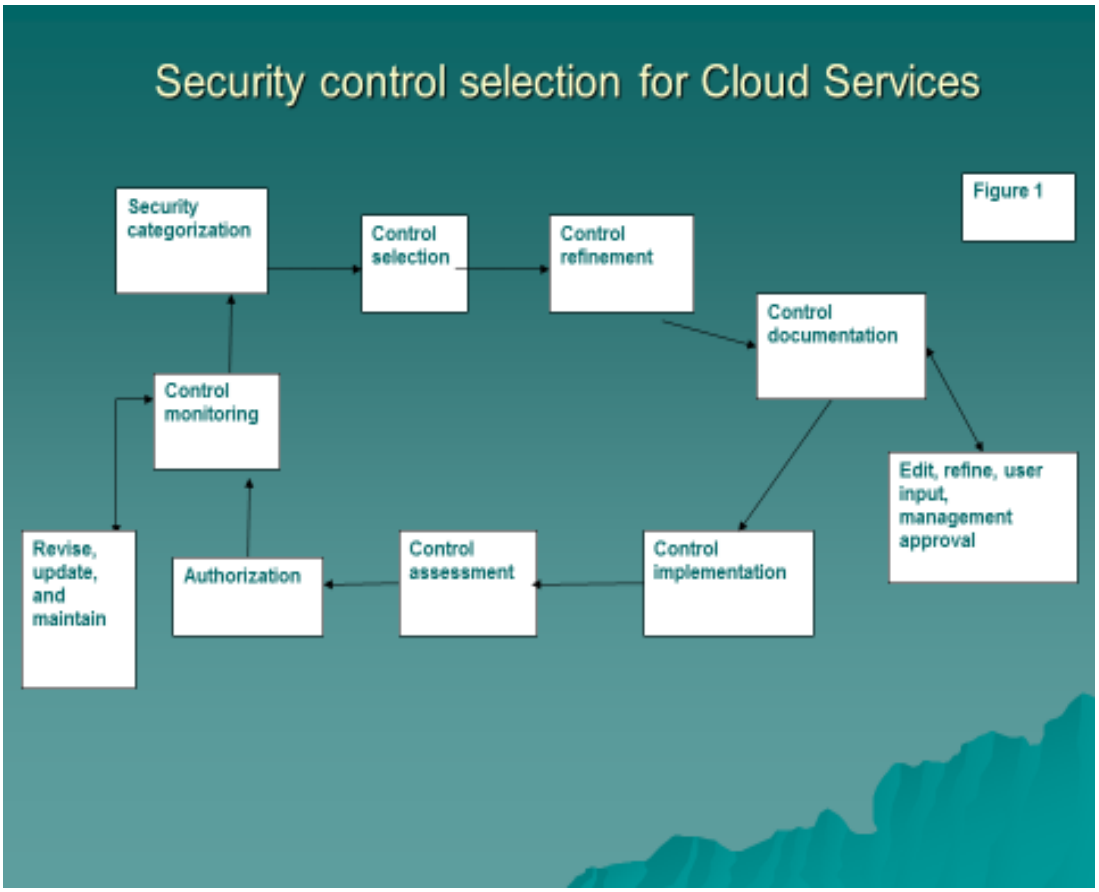


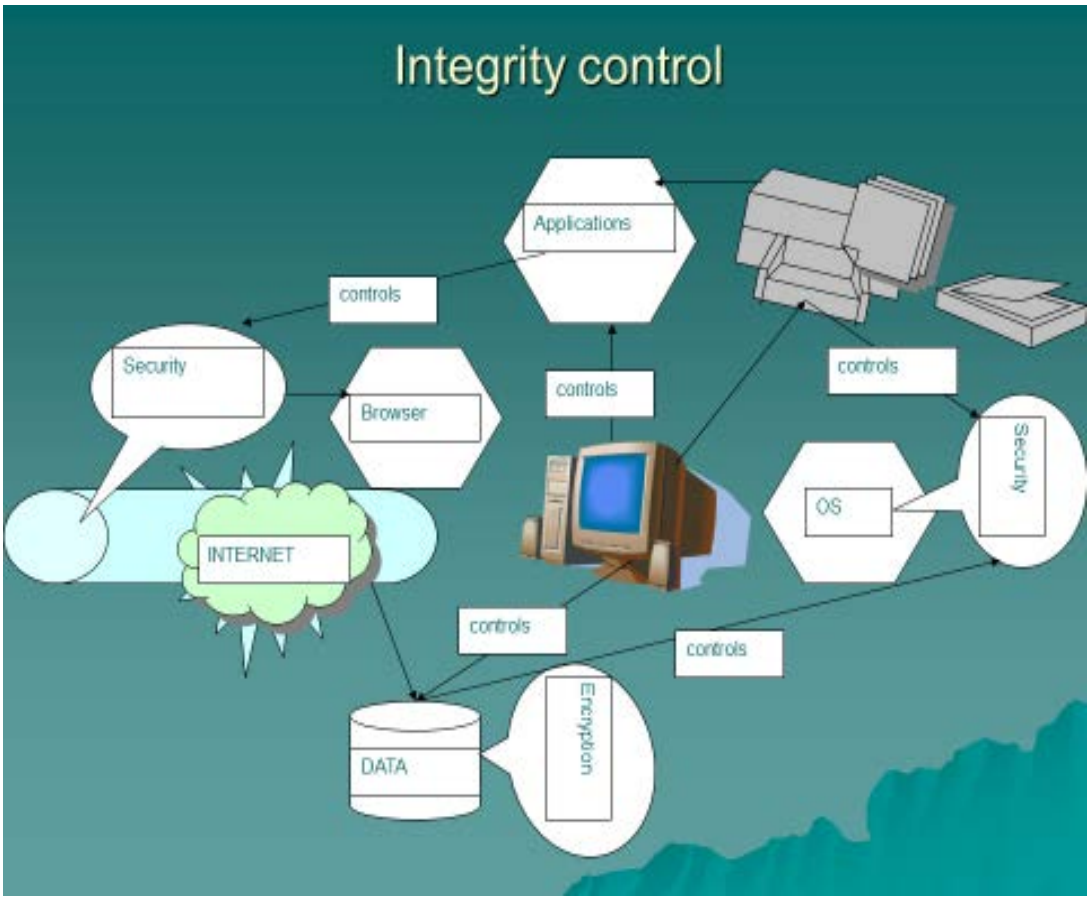
Interviewees and the researcher of this study participated in the development of NIST standards, guidance, FedRAMP[SM] criteria, and adopted cloud systems for respective organizations. In this Appendix E, an example of a compliant public cloud is provided as an artifact and is available in the public domain. A listing of FedRAMP[SM] compliant cloud services available for leveraging according to organization requirements, direction and guidance for achieving security and privacy control compliance, third party assessors, cloud service providers, and training for all cloud participants is available at http://www.fedramp.gov.


Enterprise Information Security
Cloud Computing Services
The CIO's Mandate for a "Cloud First" Initiative and ISO 26000
Presented by:
Nancy M Landreville

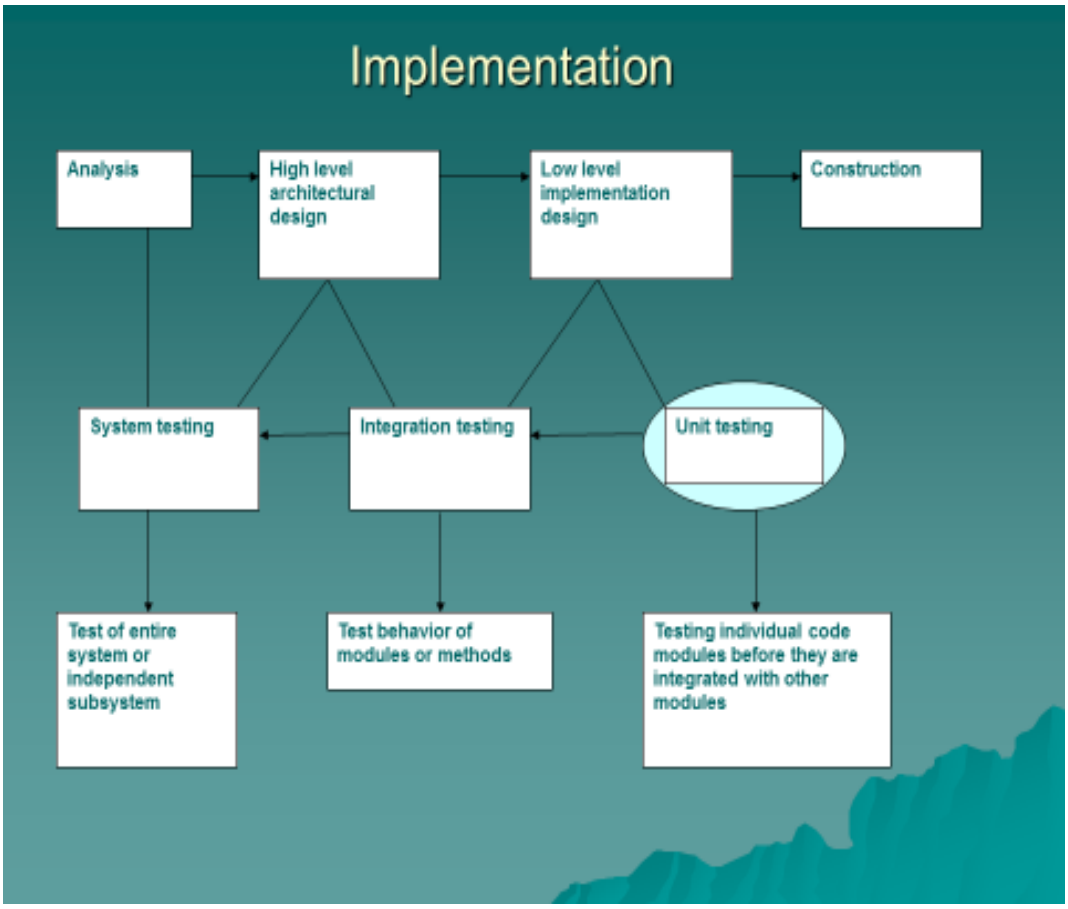

CIO's Mandate
"Cloud First" policy
This initiative is a requirement for the government to implement cloud services whenever possible
This supports responsible governance which is the purpose of ISO 26000

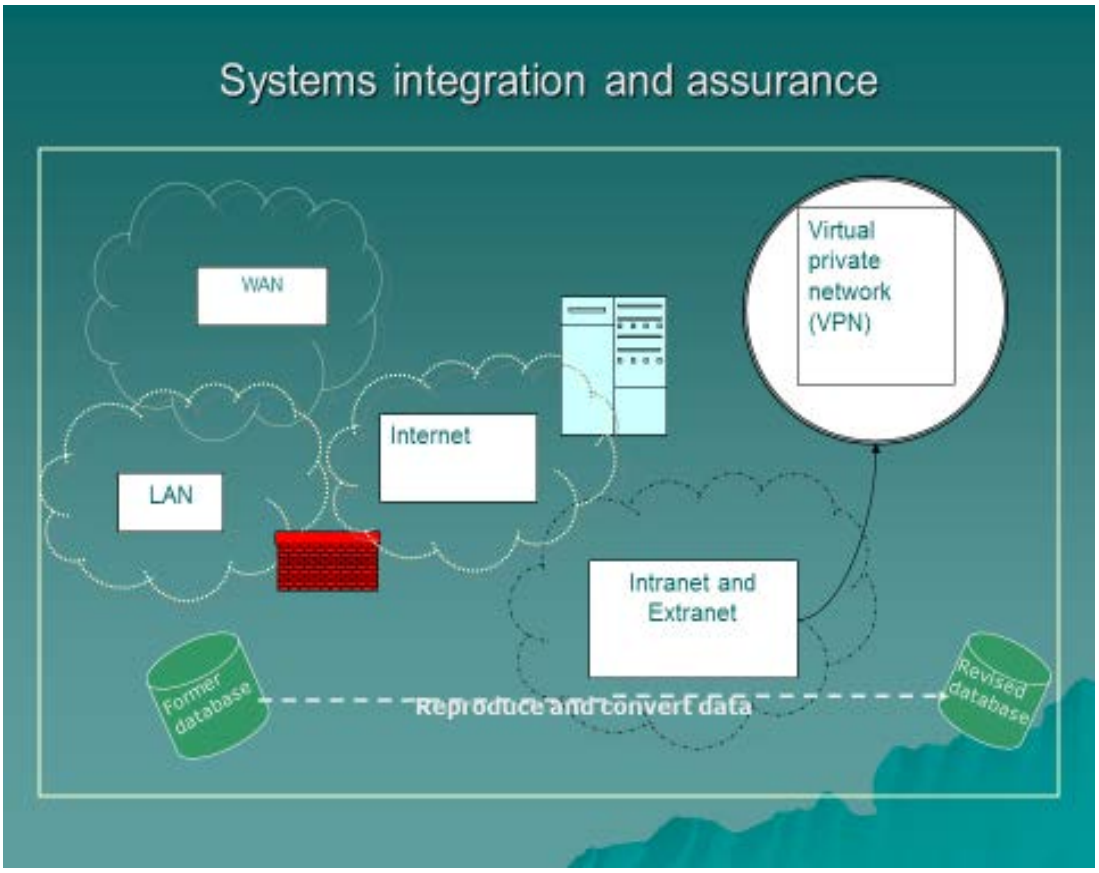

Information system
Web server Internet Intranet
Technology architecture plan
Telecom
Databases
Security management controls and measures
Application architecture plan
Standards framework, controls, and strategies
Risk assessment and management techniques
Software programming code
Protect integrity of system
DSA
Extended Industry Standard Architecture for hardware

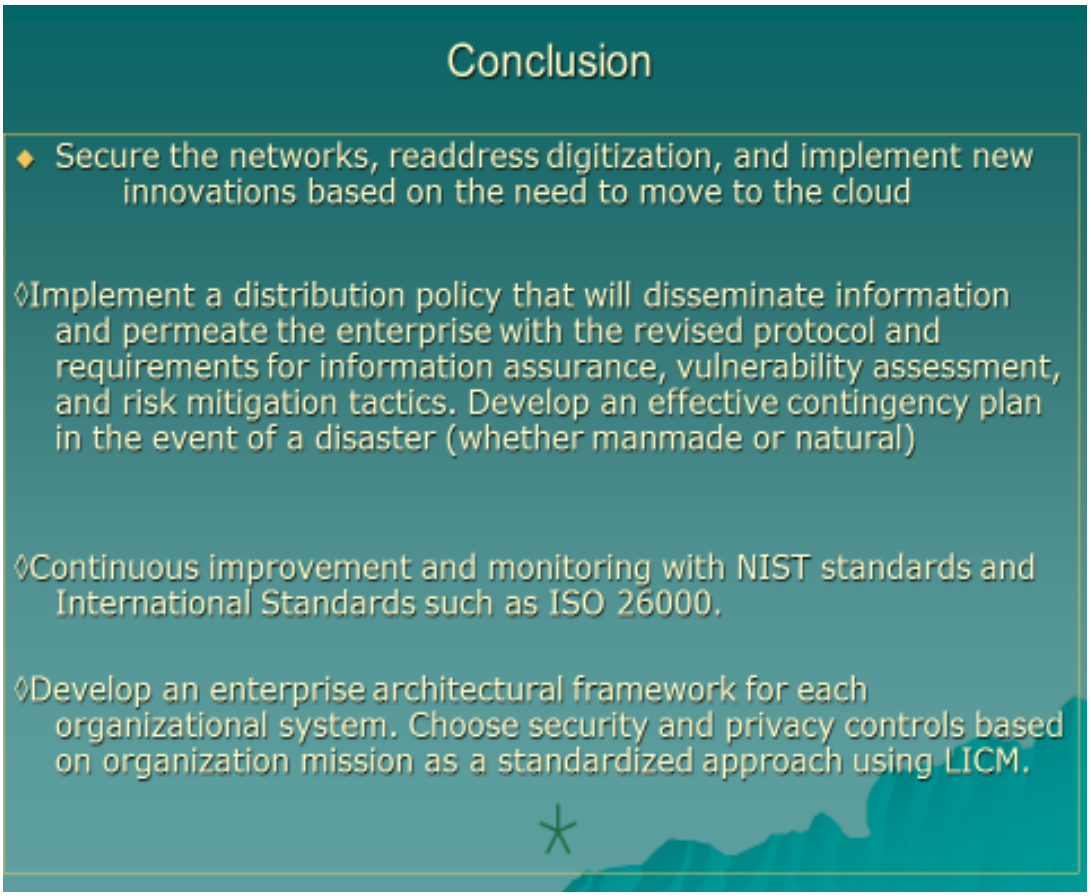

Security control selection for Cloud Services
Figure 1
Security categorization
Control selection
Control refinement
Control documentation
Edit, refine, user input, management approval
Control implementation
Control assessment
Authorization
Revise, update, and maintain
Control monitoring


Integrity control
Applications
controls
Security
Browser
controls
controls
Security
OS
INTERNET
controls
controls
DATA
Encryption


ISO 26000
This standard is guidance on social responsibility of organizations for the contribution of sustainable development.
The Cloud initiative is an ISO 26000 undertaking
Strategic management processes in cloud align with ISO 26000


Implementation
Analysis
High level architectural design
Low level implementation design
Construction
System testing
Integration testing
Unit testing
Test of entire system or independent subsystem
Test behavior of modules or methods
Testing individual code modules before they are integrated with other modules


Systems integration and assurance
WAN
Virtual private network (VPN)
Internet
LAN
Intranet and Extranet
Former database
Reproduce and convert data
Revised database


Conclusion
Secure the networks, readdress digitization, and implement new innovations based on the need to move to the cloud
◊Implement a distribution policy that will disseminate information and permeate the enterprise with the revised protocol and requirements for information assurance, vulnerability assessment, and risk mitigation tactics. Develop an effective contingency plan in the event of a disaster (whether manmade or natural)
◊Continuous improvement and monitoring with NIST standards and International Standards such as ISO 26000.
◊Develop an enterprise architectural framework for each organizational system. Choose security and privacy controls based on organization mission as a standardized approach using LICM.